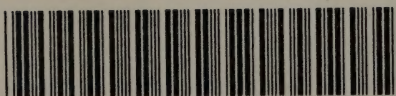


FINAL REPORT

**OF THE
COMMISSION
OF INQUIRY
INTO THE
NON-MEDICAL
USE OF DRUGS**



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Commission of Inquiry
into the Non-Medical
Use of Drugs

Commission d'enquête
sur l'usage des drogues
à des fins non médicales

FINAL REPORT

OF THE

COMMISSION OF INQUIRY

INTO THE

NON-MEDICAL

USE OF DRUGS

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December 14, 1973

The Honourable Marc Lalonde, P.C., M.P.,
Minister of National Health and Welfare,
Brooke Claxton Building,
Tunney's Pasture,
Ottawa, Ontario.

Sir,

The Commission of Inquiry into the Non-Medical Use of Drugs, established under Order in Council P.C. 1969-1112, has the honour to submit the fourth and Final Report of its findings and recommendations.

Respectfully yours,

Gerald Le Dain, *Chairman*

Ian L. Campbell, *Member*

Heinz E. Lehmann, *Member*

J. Peter Stein, *Member*

Marie-Andrée Bertrand, *Member*

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Part One

Introduction

The Work of the Commission

APPOINTMENT OF THE COMMISSION

The Commission of Inquiry Into the Non-Medical Use of Drugs was appointed by the Government of Canada under Part I of the *Inquiries Act* on May 29th, 1969, on the recommendation of the Honourable John Munro, then Minister of National Health and Welfare.*

The concern that gave rise to the appointment of the Commission is described in Order in Council P.C. 1969-1112, which authorized the appointment, in the following terms:

The Committee of the Privy Council have had before them a report from the Minister of National Health and Welfare, representing:

That there is growing concern in Canada about the non-medical use of certain drugs and substances, particularly, those having sedative, stimulant, tranquillizing or hallucinogenic properties, and the effect of such use on the individual and the social implications thereof;

That within recent years, there has developed also the practice of inhaling of the fumes of certain solvents having an hallucinogenic effect, and resulting in serious physical damage and a number of deaths, such solvents being found in certain household substances. Despite warnings and considerable publicity, this practice has developed among young people and can be said to be related to the use of drugs for other than medical purposes;

That certain of these drugs and substances, including lysergic acid diethylamide, LSD, methamphetamines, commonly referred to as "Speed", and certain others, have been made the subject of controlling or prohibiting legislation under the Food and Drugs Act, and cannabis, marijuana, has been a substance, the possession of or trafficking in which has been prohibited under the Narcotic Control Act;

That notwithstanding these measures and the competent enforcement thereof by the R.C.M. Police and other enforcement bodies, the incidence

* The Honourable John Munro was succeeded as Minister of National Health and Welfare by the Honourable Marc Lalonde on November 27, 1972.

of possession and use of these substances for non-medical purposes, has increased and the need for an investigation as to the cause of such increasing use has become imperative.

The Order in Council sets out the terms of reference of the Commission as follows:

That inquiry be made into and concerning the factors underlying or relating to the non-medical use of the drugs and substances above described and that for this purpose a Commission of Inquiry be established, constituted and with authority as hereinafter provided,

- (a) to marshal from available sources, both in Canada and abroad, data and information comprising the present fund of knowledge concerning the non-medical use of sedative, stimulant, tranquillizing, hallucinogenic and other psychotropic drugs or substances;
- (b) to report on the current state of medical knowledge respecting the effect of the drugs and substances referred to in (a);
- (c) to inquire into and report on the motivation underlying the non-medical use referred to in (a);
- (d) to inquire into and report on the social, economic, educational and philosophical factors relating to the use for non-medical purposes of the drugs and substances referred to in (a) and in particular, on the extent of the phenomenon, the social factors that have led to it, the age groups involved, and problems of communication; and
- (e) to inquire into and recommend with respect to the ways or means by which the Federal Government can act, alone or in its relations with Government at other levels, in the reduction of the dimensions of the problems involved in such use.

THE COMMISSION'S INTERPRETATION OF ITS TERMS OF REFERENCE

Although the preamble to the Order in Council authorizing the appointment of the Commission draws particular attention to certain kinds of non-medical drug use, the Commission is directed by its terms of reference to inquire into the non-medical use of the whole range of psychotropic drugs or substances. Thus the Commission has been concerned not only with the so-called 'soft' drugs, such as cannabis and the other hallucinogens, but with the 'hard' drugs, such as the opiate narcotics, and also with two of the most widely used psychotropic drugs, alcohol and tobacco. Some observers have suggested that the Commission should not have concerned itself with alcohol. For reasons indicated in subsequent sections we believe that this would have been an inexcusable omission that would have created a false impression of the true extent and relative seriousness of non-medical drug use. Moreover, the relationships between the various forms of drug use and the phenomenon of multi-drug use have made it imperative to consider as many of the classes of psychotropic drugs or substances as possible.

The Commission was appointed to inquire into non-medical drug use, but it has had to consider medical use insofar as it bears on non-medical use. The line between the two is not always clear. Medical use can develop into non-medical use. As we said in our *Interim Report*, prescription cannot be the sole criterion of medical use. Some drugs for which there is a medical use do not require prescription. The use which is made of drugs under prescription may not be in some cases a justifiable medical use. *In our Interim Report we defined medical use as use which is indicated for generally accepted medical reasons, whether under medical supervision or not, and non-medical use as that which is not indicated on generally accepted medical grounds.* Moreover, it has been necessary for us to consider the bearing which the availability and use of drugs for medical purposes have on non-medical drug use. The medical use of drugs contributes to a climate of reliance on drugs for various purposes, and the availability of drugs for medical purposes creates a supply from which there may be diversion to non-medical purposes. Thus, in an inquiry into non-medical drug use, it is essential to consider the controls over the availability of drugs for medical purposes.

These two factors—the range of the drugs involved and the necessity of considering the implications of availability and use for medical purposes—have served to determine the scope of the inquiry. A third such factor, which is discussed in the next section, is the extent to which it is necessary, in considering what government may do, to comment on the role of other institutions and individuals in relation to non-medical drug use. Non-medical drug use is not only a matter of personal conduct but a social phenomenon. The inquiry into it has necessarily involved an examination of non-governmental as well as governmental influences on it.

THE PUBLIC HEARINGS

Because of the nature of the phenomenon—and the crucial role played by public attitudes—the Commission conducted public hearings across Canada. There were two sets of such hearings: one before the *Interim Report* and one afterwards. The schedule of these hearings appears in Appendix Q. The purpose of the hearings was not to attempt an accurate survey of opinion in Canada but to identify the issues and the range of opinion, and to afford an opportunity for public discussion. In this we believe the hearings were very successful. They provided an opportunity for adults and young people to exchange views at a time when strong feelings and, indeed, a polarization of opinion had built up over the issue of non-medical drug use. The hearings were conducted in a fairly informal manner, and in many cases in informal settings, with plenty of opportunity for participation by the audience after presentation of formal briefs. People of all ages spoke with candour, and often great depth of feeling, and the Commission received a

vivid impression of the extent to which the problem of non-medical drug use had touched the lives and the concern of Canadians.

Before it began its public hearings, the Commission wrote to over 750 individuals and organizations inviting them to submit briefs or to make oral submissions. In particular, the Commission solicited briefs from: federal and provincial government departments; law enforcement authorities; educational institutions and associations; members of university faculties and departments; medical and pharmaceutical institutions and associations; addiction research foundations; street clinics and other innovative services; correctional and welfare organizations; bar associations; youth organizations; student organizations; and a wide variety of other organizations and individuals having an evident concern or point of contact with the phenomenon of non-medical drug use in Canada. In addition to specific invitations, general public notices were issued and published in newspapers across the country, inviting briefs and attendance at the hearings. The Commission received a gratifying response to this invitation, and despite the relatively short time available in some cases for the preparation of briefs, individuals and organizations made a very commendable effort to prepare submissions for the public hearings which began in the middle of October 1969.

The Commission held public hearings in 27 cities, including Ottawa and all the provincial capitals. It visited several cities twice. In addition to these regular public hearings, the Commission conducted hearings in 23 universities, several junior colleges and high schools, and some informal settings of the youth culture, such as coffee houses in Montreal, Toronto and Vancouver. In all, the Commission spent 46 days in public hearings, and it is estimated that it travelled about 50,000 miles. In addition, the members of the Commission, both collectively and individually, held many private hearings. The anonymity of witnesses was guaranteed where requested. The nature of the public hearings and the impression they made on us are more fully described in our *Interim Report*.

The Commission received a total of 639 submissions from organizations and individuals, as follows: from organizations, 295 written and 43 oral submissions; and from individuals, 212 written and 89 oral submissions. Oral submissions were recorded at public hearings and transcribed. In addition, many persons who were not identified by name spoke at the public hearings, and the Commission received hundreds of letters which are not classified as formal submissions. A full list of organizations and individuals who presented submissions, written and oral, to the Commission is contained in Appendix P.

THE COMMISSION'S RESEARCH PROGRAM AND STAFF

The Commission research has been carried out by a staff of full-time scientific personnel and outside researchers working under contract. The full-time research staff has consisted of a research director, research associates

from various scientific disciplines and research assistants. Full-time staff members with the Commission during the production of this *Final Report* are listed in Appendix N. Former members of the staff, whose work contributed primarily to earlier Commission reports, are listed in those publications. The Commission's contract researchers and major consultants are noted in Appendix O.

Under the guidance of the Commission's librarian, Ed Hanna, we have developed a collection of over 14,600 articles, books, briefs and other documents. In addition, we have had full access to the library and documentation facilities of the Addiction Research Foundation of Ontario, to the Library of the Department of National Health and Welfare, to the National Library, and to the National Science Library. We have also received considerable assistance from other libraries in Canada and abroad through inter-library loan and special subject searches. Examples of these are the U.S. National Institute of Mental Health Clearinghouse for Drug Abuse Information, the U.S. National Library of Medicine, and the Science Information Exchange of the Smithsonian Institution.

The Commission's research program consisted of some 120 projects, many of which are listed in Appendix R. In addition, there was a variety of miscellaneous investigations which were not formally classified as separate projects. The areas covered by the research program include: chemical and botanical factors; physiological, psychological and behavioural effects; extent and patterns of use; motivation and related factors; social context; mass media; legal and illegal sources and distribution; legal controls; law enforcement and the correctional system; medical treatment and related services; innovative services; information and education; prevention and alternatives to drug use; and the response of various institutions, including government, to non-medical drug use. The methods employed in our research include critical review of technical and scientific literature and current investigations, surveys and interviews, participant observation, human pharmacological experiments, and chemical analysis of illicit drugs.

From the beginning of our inquiry it was apparent that there was a great need for more information concerning the nature and effects of the various drugs. Such information is essential for public policy and personal decisions, as well as programs of drug education. For these reasons the Commission invested a significant proportion of its resources in the study of drug effects. These efforts involved the use of data and information obtained by the various research methods mentioned above. The Commission's work in this area is reflected primarily in Chapter Two of the *Interim Report*, entitled "The Drugs and Their Effects"; Chapter Two of the *Cannabis Report*, entitled "Cannabis and Its Effects"; and in Appendix A of the present report, entitled *The Drugs and Their Effects*. Most of the work in this area has been conducted by the Commission's full-time research staff under the direction of Dr. Ralph D. Miller, Research Director, who drafted the above sections of the Commission's reports. Dr. Miller was assisted

at various stages in this work by Research Associate Dr. Ralph Hansteen; by Research Assistants Joan Brewster, Pat Oestreicher, Marilyn Bryan, Barry Hemmings, Penelope Thompson, Linda Wright, and Richard Paterson; by consultant Dr. Zalman Amit; and by other members of the research and consulting staff.

The work in Appendix B *Legal and Illegal Sources and Distribution of Drugs* was directed by Research Associate Mel Green. He was assisted by Research Assistants Marcus Hollander, Ken Stoddart, Dave McLachlen, Ann Lane and others. Robert Solomon participated in the empirical research on law enforcement and the correctional system, directed by Professor John Hogarth, and, with the assistance of Mr. Green, is responsible for the work on the sources and distribution of opiate narcotics (Appendix B.2).

The preparation of Appendix C *Extent and Patterns of Drug Use* was carried out under the joint direction of Mel Green and Judith Blackwell, Senior Research Assistant. They were assisted by Research Assistants Gordon Smith, Marcus Hollander, Dave McLachlen, Florence Hughes, Carolyn Petch, by consultants Dr. Taylor Buckner and Dr. Stanley Sadava, and by other staff members.

The Commission's national surveys were conducted by the Survey Research Center of York University, under the direction of Sondra B. Phillips and the general supervision of Dr. Michael Lanphier. The surveys in the Province of Quebec were carried out by le Centre de Sondage de l'Université de Montréal. Mel Green directed a project of participant observation in the summer of 1970 to determine patterns of non-medical drug use in certain urban centres of the drug subculture. He and Judith Blackwell also conducted a monitoring project in the spring and summer of 1972 by which the Commission sought, through contacts with informed observers across the country, to identify further developments in extent and patterns of drug use.

Appendix D *Motivation and Other Factors Related to Non-Medical Drug Use* is based on research by full-time members of the staff and outside consultants. Dr. Lynn McDonald, former Research Associate of the Commission, made a significant contribution to the research on which this appendix was based, and Mr. Green and Ms. Blackwell played a substantial role in its final drafting. Consultants Dr. Roderick Crook, Dr. Zalman Amit and Dr. Jim Hackler also contributed background materials employed in preparing this appendix.

Research Assistants Ann Lane and Byron Rogers conducted the research for Appendix H *Treatment Capacity in the Provinces*. Ms. Lane and Brian Anthony carried out the background work for Appendix G *Opiate Maintenance*. Mr. Green provided much of the research for Appendix L *Civil Commitment in California* and Mr. Rogers did the investigation for Appendix M *Innovative Services*. Michael Bryan, Special Assistant and Editor, made a major contribution to the research on the correctional system and the drafting of Appendices I, J, and K.

CONSULTATION AND ADVICE

During the course of its work the Commission had the benefit of consultation and advice from a wide range of organizations and individuals. Many of these are listed in Appendices O and P. The Commission is especially grateful for the assistance it has received from federal and provincial government departments and services in connection with its research. In the preparation of this *Final Report* the Commission has made particularly heavy demands for assistance on the Health Protection Branch of the Department of National Health and Welfare, and in particular, the Bureau of Dangerous Drugs, the Drug Advisory Bureau, the Drug Research Laboratories, and the Field Operations Unit. We have also received valuable assistance from the Canadian Penitentiary Service, the National Parole Board, the Judicial Division and the Health and Welfare Division of Statistics Canada, as well as from several provincial government departments, including those concerned with probation. The Commission has continued to receive the full cooperation of the R.C.M. Police, as it has from the beginning of its inquiry.

Significant assistance was provided to us at various stages of our inquiry by the Addiction Research Foundation of Ontario. Information provided by Eric Polacsek of their Documentation Center and by the Foundation's library greatly facilitated our work, as did the chemical analytic services provided by Dr. Joan Marshman and her staff. In addition, we are appreciative of the generous advice and consultation provided from time to time by numerous other members of the Foundation's research staff. The personnel of the Narcotic Addiction Foundation of British Columbia have also been helpful in our work.

The Commission has received valuable assistance from a number of organizations and individuals in other countries. Particularly noteworthy was the assistance it received from the United States Bureau of Narcotics and Dangerous Drugs and other American law enforcement authorities in determining patterns of drug trafficking, from the U.S. National Institute of Mental Health, from the officials of the California Civil Commitment Program, and from public officials and treatment personnel in connection with the treatment of opiate-dependent persons in Great Britain. Members of the Commission and staff visited many foreign countries, observing conditions and consulting local experts, and attended most of the major scientific conferences around the world dealing with non-medical drug use. We also sought the views of experts from North America and abroad in a number of private meetings and symposia held in Canada.

ADMINISTRATIVE STAFF

James J. Moore, Executive Secretary of the Commission during the period in which the Commission produced its *Interim Report*, *Treatment Report* and *Cannabis Report*, was obliged to leave the Commission to take

up another position in the fall of 1972. By the time he left, however, the work on the *Final Report* was well advanced, and it owes much to his participation in planning and direction. We take this opportunity to express our appreciation of his invaluable contribution to the work of the Commission.

Since Mr. Moore's departure the Chairman of the Commission has been ably assisted in administrative matters by Frederick Brown, who also carried out a variety of research tasks, and by Michael Bryan, who has had responsibility for coordinating all editorial and other operations involved in the preparation of this report for publication.

Appreciation must also be expressed to Mr. C. W. Doylend, Office Manager of the Ottawa office of the Commission, and his assistants, and to the secretarial staff for their devoted service.

THE REPORTS OF THE COMMISSION

This is our fourth and final report. It presupposes and relies, in varying degrees, on the previous reports, which are referred to as the *Interim Report*, the *Treatment Report* and the *Cannabis Report*. On certain points our perspective has evolved beyond that expressed in previous reports, and in some cases we have changed our views. Wherever we have been conscious of such a change we have drawn attention to it. As far as possible, we have attempted to profit from reaction to previous reports and from additional knowledge and understanding acquired in the intervals between our reports. The four reports reflect the evolution of our thinking over a period of approximately four years. This evolution is, of course, related to changes which have taken place during that time in the phenomenon of non-medical drug use and in the social response to it. Although the differences of opinion between members of the Commission on certain points have tended to increase with the passage of time and the concentration on the detailed implications of its general policy perspective, there has been a significant measure of cohesion and continuity in that general perspective, considering the highly subjective and controversial nature of the value judgments involved.

By and large we have regarded the four reports as having a cumulative effect, and we have not hesitated to reproduce parts of previous reports that we have felt were pertinent to matters being discussed in this report. Although the *Interim Report* was published in 1970 much of what was said there remains an essential part of the Commission's general perspective today. The *Treatment Report* is the principal statement of the Commission on this subject, but we have resumed the discussion of certain treatment issues in this report. Since a separate final report was devoted to cannabis, the present report has concentrated on the other psychotropic drugs, and in particular, on the opiate narcotics, the amphetamines and the strong hallucinogens. There has also, however, been considerable emphasis on other psycho-

tropic drugs which are the subject of non-medical use, and in particular, on alcohol and tobacco. We have not attempted to carry the discussion of cannabis, in any significant degree, beyond the *Cannabis Report*, which must remain our final word on that subject. But there is much in the *Cannabis Report* that is pertinent to the discussion of other forms of non-medical drug use, particularly in the areas of law and scientific issues, and we have drawn on some of these discussions from the earlier report.

THE APPENDICES

The appendices of this report form an integral part of it. They are not background papers but contain our conclusions on the subject-matters with which they deal. The appendices reflect the findings and conclusions of all the members of the Commission. There is no difference of opinion (at least any explicit difference of opinion) with respect to anything contained in them. The relationship between the parts of the report which are designated as "sections" and the appendices is simply one of convenience in the treatment and disposition of material. The chief purpose has been to try to avoid breaking the continuity of discussion by the intrusion of too much detail. The sections are chiefly concerned with conveying our general perspective, although in some cases they contain the whole of the discussion on a particular subject. They also contain our recommendations, although there are some exceptions, as in the case of Appendix M *Innovative Services*. On the whole, the appendices are intended to contain the detailed examination of certain subjects which is considered to be necessary or useful for a consideration of the various policy issues. As indicated, however, we have not followed an inflexible rule; generally there is discussion of a subject in both the sections and the appendices; in some cases the whole of the discussion is to be found in one or the other. The point to be emphasized here is that the appendices are as essential to an understanding of the Commission's perspective and assumptions of fact as are the sections of the report.

TRANSLATION

The four reports of the Commission were translated by Michel Coupal, director, and the staff of Les Traductions 530, Inc., Montreal, Quebec, who are to be commended for the high quality of their work.

Section II

Some Preliminary Observations

THE PROBLEMS INVOLVED IN NON-MEDICAL DRUG USE

The Commission's terms of reference require it to make recommendations to the Government of Canada as to what it can do, alone or with other levels of government, to reduce the dimensions of the problems involved in the non-medical use of psychotropic drugs and substances. They do not suggest what the government considers to be problems, although the preamble to the Order in Council which authorizes the appointment of the Commission expresses concern about the *increase* in certain kinds of drug use in recent years, particularly among young people. In the *Interim Report* we suggested that the following were problems involved in non-medical drug use: the harm (whether personal or social) produced by certain non-medical drug use; the extent and patterns of such use, and in particular its increase among certain groups in the population; the aspects of our personal relations and social conditions today which encourage such use; the proliferation and adulteration of drugs; the lack of sufficient scientifically valid and accepted information concerning the phenomenon of non-medical drug use; the lack of a coordinated and otherwise effective approach to the timely collection and dissemination of such information as does exist, including appropriate drug education programs; our present approach to treatment and other supportive services required to assist people suffering from the adverse effects of non-medical drug use; and the content and application of the criminal law in the field of non-medical drug use.

These certainly remain problems, although the relative priority and emphasis to be given to them have in some cases altered since the *Interim Report*. The degree to which they are still problems has changed. The overall perspective in which they were identified as problems is not the same. For example, there has been an increase in research and in the attempt to gather and disseminate valid information since the *Interim Report*; there has been a development of drug education programs; there has been a constructive change in the general attitude of the medical profession towards drug users;

there has been generous government support for innovative services of all kinds; and there has been a more enlightened approach to the use of the criminal law. Nevertheless, serious problems remain in the fields of research, information and education, treatment, other supportive services, and the law. Moreover, since the *Interim Report* our perspective has changed as to the nature and extent of the more serious forms of non-medical drug use. The principal concern is now with chronic multi-drug use. Prominent in this picture is the increasing experimentation with stronger drugs, and in particular with the opiate narcotics.

THE IMPORTANCE OF MULTI-DRUG USE

The relative importance of the problems referred to above varies according to the different kinds of drug use. With cannabis, for example, the problem of the content and application of the criminal law has been more important than the problem of treatment. With the opiate narcotics, treatment—and in particular opiate maintenance—is a major issue, as well as the extent to which the law is to be used for purposes of control. Thus, there are general observations which are applicable to the various kinds of drug use, but it is necessary to make distinctions on particular points. It might be desirable to be able to formulate a general response, but we are dealing, in multi-drug use, with a complex phenomenon that presents itself under many aspects. For purposes of systematic, detailed analysis it may be helpful to consider the various forms of drug use separately. In practice, however, the drug use of many individuals is complicated by the fact that they use several drugs. It is essential to bear this perspective of multi-drug use constantly in mind, or we shall think unrealistically in terms of separate, quite distinct forms of drug use which do not bear on one another.

SOCIAL POLICY AND INDIVIDUAL POLICY

In the *Interim Report* we developed the concept of 'social response'. We suggested the nature of this concept in the following passage:

We see non-medical drug use generally as presenting a complex social challenge for which we must find a wise and effective range of social responses. We believe that we must explore the full range of possible responses, including research, information and education; legislation and administrative regulation; treatment and supportive services; personal and corporate responsibility and self-restraint; and, generally individual and social efforts to correct the deficiencies in our personal relations and social conditions which encourage the non-medical use of drugs. We attach importance to the general emphasis in this range of social responses. We believe that this emphasis must shift, as we develop and strengthen the non-coercive aspects of our social response, from a reliance on suppression to a reliance on the wise exercise of freedom of choice. [Paragraph 389.]

It is necessary, however, to distinguish the response which we make as a society—working in an organized, collective way—and the response which we

make as individuals at various points of contact with the phenomenon of non-medical drug use. The individual response is an essential part of the social response, but it is also something which may be considered from an entirely different perspective. For example, we may, as individuals, have an attitude towards non-medical use which we may consider inappropriate or simply not feasible for attempted implementation as social policy. In this report we are concerned with the search for a wise social policy—that is, a policy which the society may consciously pursue as a whole. Such a policy must of course be carried out not only by government and other institutions but also by individuals influencing the phenomenon of non-medical drug use at the various points at which they have contact with it. Within this framework of social policy there is room for a wide range of individual policy. On the whole, however, individual policy or behaviour must reinforce social policy, if the latter is to be effective.

GOVERNMENTAL AND NON-GOVERNMENTAL ACTION

While the Commission's terms of reference require it to recommend to the Federal Government what it can do alone or with other governments to reduce the problems involved in non-medical drug use, it is impossible to consider the appropriate role for government without reference to what other institutions and individuals are capable of doing. The government's role must be seen in the context of the society's response as a whole. Government acts directly by legislative prohibition or regulation, but it also acts by supporting the efforts of others. Action by government in the form of legislation can have a beneficial or an adverse effect upon non-governmental efforts in various areas. For example, a certain use of the criminal law may affect efforts in the fields of education and treatment. Government, through legislation and the kinds of social response it supports, conveys its own characterization and perspective of the phenomenon. It conveys an impression as to how seriously it regards a social problem. The extent to which this impression actually influences attitudes is another question. The attitude concerning the potential of harm of cannabis has been at extreme variance with the impression given by its classification in the law with the opiate narcotics. Conversely, the absence of an offence of simple possession for the amphetamines has not impeded the development of a widespread understanding concerning the dangers of 'speed'.

Although our terms of reference only require us to recommend the action to be taken by the Federal Government, we feel that this necessarily involves a commentary upon what should be done by other institutions and individuals. This non-governmental response is a necessary assumption or basis of any governmental action. What it is prudent for government to do or not to do will depend on what it may reasonably expect from other kinds of intervention and influence in the society.

The terms of reference speak of action in cooperation with other governments. Clearly, then, we are not to be confined, in considering a

wise social policy, to the limits of Federal Government jurisdiction under the constitution. We also have to consider what provincial and municipal governments may do and how the Federal Government may assist them.

THE OBJECTIVES OF SOCIAL POLICY

The legal distinction between medical and non-medical drug use turns essentially on medical judgment as evidenced by prescription. There is no such basis for distinguishing between non-medical drug use which may be relatively harmless, in particular circumstances, and that which is not. With drugs which have an accepted medical value, the law relies in the final analysis on the judgment of physicians to assure a proper medical use of them. As we have seen, we cannot take prescription as the infallible criterion of the distinction between medical and non-medical use; the issue is whether the drugs are in fact prescribed for generally accepted medical reasons. In other words, the judgment and general prescribing practices of physicians must be subject to critical review. But in the final analysis the law relies on medical judgment to confine the use of such drugs to medical purposes. The physicians are the final gatekeepers. Some drugs with medicinal value do escape this control by medical prescription. Such are the over-the-counter drugs which are available for self-medication and use at the discretion of the individual. Where such drugs present a particular potential for harm they may be brought under the control of the requirement of a prescription.

Where drugs do not have an officially recognized medical value there is no regulatory means such as medical judgment to distinguish acceptable from non-acceptable use. There is no judgment or discretion to which the law can delegate the responsibility for making this distinction. In such circumstances, the law is faced with the choice of making the drug legally available or prohibiting its distribution altogether. There is no intermediate system of control to distinguish between harmful and relatively harmless use, between moderate use and excessive use, between use and 'misuse' or 'abuse'. It is difficult through legal regulation to pursue a policy of moderation, as distinct from one of abstinence. If the decision is to make a drug legally available for non-medical purposes the law must rely on individual judgment and other influences to assure a level of use that avoids harm.

Such a policy presupposes that a particular drug is capable of controlled, moderate and relatively harmless use. Here we encounter other difficulties in an attempt to formulate wise social policy with respect to non-medical drug use. Is any drug which has a potential for significant harm capable of a controlled non-medical use? It is, of course, a matter of degree and the price we are prepared to pay for certain satisfactions. It is a question of what we are prepared to regard as 'significant harm'. Theoretically it may be possible to restrict one's smoking of cigarettes to the point which avoids any appreciable danger of harm, but comparatively few

people are able to maintain this level of consumption. In the end a very high proportion of smokers are inevitably exposed to the dangers of tobacco.

This is a difficulty which we encounter in attempting to formulate social policy. We know comparatively little about safe and unsafe levels of consumption of drugs for non-medical purposes. Such knowledge can only be produced by long-term research into effects at various dose levels. For example, although cannabis, like alcohol, is susceptible of controlled use, we are not yet in a position, as we pointed out in the *Cannabis Report*, to give assurances as to what are moderate and relatively harmless levels of use. Thus, even with drugs which are capable of controlled use, we may not be able to provide the information required for wise personal decisions.

Some drugs are not susceptible of controlled use. There may be risk of harm at any level of use, even initial, experimental use. Such is the case with the strong hallucinogens such as LSD. There are particular dangers in ever using heroin or 'speed'. It is irrelevant to speak of a policy of moderation with respect to such drugs. Excessive use certainly increases the risk of harm, but harm may occur on any occasion of use. The effects of a number of these drugs at a normal level of use are quite unpredictable. In such circumstances the law must decide whether the risk of harm from these drugs is such as to call for total prohibition. There are, of course, other factors to be taken into consideration in determining what is a feasible legislative policy, including the price one pays for certain use of the law, but the actual risk of harm is the first factor to be considered. The fact that a drug has a significant potential for harm and does not lend itself to a controlled use does not automatically lead to a policy of prohibition. We may decide for a number of reasons, as we do with other risks, to rely on peoples' judgment, wisdom, self-interest or learning capacity to avoid harm.

Another difficulty which we encounter in attempting to formulate the objectives of social policy is the possible relationship between any drug use and excessive or harmful use. There can be no harmful use unless in the first instance there is some use. Moreover, the lines between occasional use, moderate use, and excessive use, or between harmless and harmful use, are not clearly marked. They are levels of drug use which slide into one another. Finally, the climate of drug use as a whole and the prevailing attitudes towards it are factors which can influence use at various levels. There is a view which holds that the potential for harm—the total incidence of harmful effects—increases as drug use increases generally, and that if we wish to reduce the total incidence of harm we may do so by reducing per capita drug consumption generally. This point of view is based on evidence that the distribution of the per capita consumption of alcohol in the population of users follows a certain pattern or curve (referred to as "log normal"). (See Appendix C *Extent and Patterns of Drug Use*.) It is hypothesized that regardless of an increase or decrease in drug use in any sector of the population, the overall shape of the distribution is constant and the relative pro-

portion of occasional, moderate and heavy users in the population would remain the same. According to this view, a general increase in drug use would increase the number of heavy or excessive users; if we wish to reduce the number of such users we must reduce the consumption of essentially all users. Further research will be necessary to evaluate the general validity of these hypotheses.

Another point of view is that it is wrong in principle to make any use of drugs for the purpose of altering our state of mind—that such a practice interferes with the full development of our potential as human beings. This is a concern with the effect of any kind of drug use on the personal development of the individual. The reasoning is that each time the individual turns to a drug instead of his own internal resources to cope with stress, anxiety, disappointment, and the like, he diminishes his capacity to deal with these situations or conditions by natural means and increases his ultimate reliance upon drugs for such purposes. This view tends to exaggerate the extent of our independence of external aids of various kinds. It does, however, reflect a concern with the tendency of occasional reliance to develop into permanent reliance.

Whether drug dependence is to be considered an evil in itself is also a matter of some debate. Some would argue that it is not the fact of dependence itself but the degree to which it actually interferes with effective functioning that is the evil. Others would argue that the evil lies in the impairment of autonomy or freedom of choice that is brought about by dependence. It is seen as a significant loss of personal dignity for the individual. This issue is brought into focus by the use of methadone maintenance to manage opiate dependence. The individual is enabled to function more effectively but he exchanges one form of opiate dependence for another. The serious secondary effects of heroin dependence are removed—the need to have contact with an illicit market and to commit crime to support the habit—but the individual is left with a dependence which is just as strong, if not stronger, than heroin dependence. Those who see drug dependence as an evil in itself, regardless of its effect on the individual's capacity to function, tend to see methadone maintenance as a mere transfer of the problem from one form to another. Those who tend to judge dependence in terms of its actual effects on behaviour are not so concerned about the fact that the individual remains dependent if he is able to function more or less in an otherwise normal fashion.

The individual who is dependent upon drugs is less free than one who is not. He is dependent not only upon the drug but upon others for his ability to function. If the system by which he obtains the drug fails, he is faced with a crisis which can overturn his entire equilibrium. This is, of course, true of the individual whose life is kept alive by a drug or a mechanical device—as, for example, in cases of diabetes or heart disease. Why should drug dependence which is managed by legally available maintenance doses be regarded any

differently? Does the fact that drug dependence (unlike diabetes) is self-imposed make the difference? If such is the case, we are no longer characterizing drug dependence in terms of its effect upon the individual but are investing it with a moral judgment which we pass upon the individual. Drug dependence becomes an evil not simply because of its effect upon the individual but because it is a state into which he has voluntarily entered. This tends to ignore the extent of personal responsibility for various forms of ill health. Illnesses which result from neglect or abuse of one's health—poor diet, lack of exercise, insufficient rest, overwork, excessive worry or stress—all these can be said in some measure to be self-inflicted. Yet they do not carry the same connotation or stigma of personal responsibility as drug dependence. If we search for reasons for this difference in attitude we may be led to the conclusion that in the one case the behaviour which causes illness—for example, overwork—is regarded as socially acceptable, if not desirable, or at least normal, while in the other case the behaviour which is associated with drug dependence—escape from stress, self-indulgence and so on—is regarded as socially unacceptable, at least in that form. Work addiction produces useful results for the society (although it may inflict considerable harm on the individual and those with whom he has contact), but drug addiction does not. In the final analysis we are not nearly as concerned about the effects of self-destructive behaviour on the individual himself as we are about the effects on the society as a whole. It is this which accounts for the difference in our characterization of self-indulgent behaviour which renders the individual impotent or virtually useless socially and that which makes some contribution, however distorted, to social utility. Thus the social drinking which lubricates business relations is accepted as a necessary, if not desirable, part of business behaviour, although it often lays the foundation for problem drinking and alcoholism and no doubt frequently results in impaired judgment.

On the whole, then, we tend to characterize non-medical drug use according to its behavioural manifestations, actual or presumed. This is the approach which distinguishes moderate from excessive use according to its actual effects upon the individual and society. If the individual can function effectively and continue to discharge his responsibilities, despite reliance on drugs, we are not overly concerned. The logical conclusion of this point of view is that the law should not attempt to interfere with non-medical drug use that does not produce apparently harmful effects for the individual or society, and even then it should confine its concern to the behavioural manifestations of use that result in harm to others. This is in effect the present policy with respect to alcohol, which makes alcohol legally available to persons above a certain age but punishes harmful behaviour resulting from the use of alcohol, such as impaired driving.

In the face of all these considerations what are we to conclude is a sound general attitude towards non-medical drug use and a realistic objective of social policy? Non-medical drug use is too deeply rooted and too pervasive to be eliminated entirely. It cannot be swept away. There will always be a very

high proportion of our population who will engage in non-medical drug use of various kinds. The proportion that can remain strictly abstinent—that is, avoid the use of psychotropic drugs of any kind, including those which are present in coffee and tea—will remain infinitesimal. If one considers the number of persons who are likely to continue to use tobacco and alcohol, then one develops a realistic appreciation of the inevitable proportions of non-medical drug use. If one also thinks of the number who are likely to continue to use tranquilizers and barbiturates, one has an overwhelming impression of a climate of reliance on psychotropic substances. As we said in the *Interim Report*:

One could go on. The point is that there must be very few people who do not use some psychotropic drug for non-medical reasons. The general climate, therefore, is not one of moral condemnation of the use of drugs for mood-modifying purposes, but rather one of acceptance of such use. [Paragraph 390.]

In the face of such widespread and persistent non-medical use of drugs a social policy of abstinence is not a feasible one. It is unrealistic to expect the majority of people to give up non-medical drug use altogether. But it is feasible to attempt to persuade people to reduce their overall use in order to reduce harmful use and to set a better climate of example for young people. To the extent we engage in non-medical drug use at all, we must bear our share of responsibility for the more harmful forms of use. We contribute to a general climate which encourages use. *Our objective of social policy should be to discourage the non-medical use of drugs as much as possible and to seek a general reduction in such use, but at the same time, to equip those who persist in use with sufficient knowledge to enable them to use drugs as wisely as possible.*

THE MEANS OF SOCIAL RESPONSE

How such a social policy is best pursued is another question. The identification of problems does not automatically indicate solutions. We must distinguish between the potential for harm of a particular form of non-medical drug use and the measures of social policy which it is feasible to adopt in relation to it. The fact that we are confronted by harmful behaviour does not necessarily mean that we are justified in using the most drastic measures of social intervention at our command. We have to determine what it is reasonable and feasible to attempt to do, having regard to the benefits and costs of alternative policies.

There are basically two kinds of intervention with respect to non-medical drug use: the preventive and the remedial. Both forms of action are necessary in an attempt to check its growth and impact.

The preventive approach presupposes that we know something about cause and the remedial that we know something about treatment. Unfortunately, our knowledge leaves much to be desired in both of these areas.

In the area of prevention, not only do we know little about the motivating or predisposing factors with respect to various forms of non-medical drug use but we know little about the efficacy of the various methods of prevention. In particular, we know little about the effect of education on behaviour or about the deterrent effect of the criminal law.

With respect to remedial intervention, we have indicated in our *Treatment Report* how relatively unsuccessful have been most attempts to treat drug dependence. Our most successful response is still the attempt to manage dependence, rather than to cure it, by the substitution of one dependence for another. And even this method must still be regarded as in the experimental stage and subject to very serious critical re-evaluation.

Despite this relative lack of knowledge and the essentially discouraging outlook for treatment, we must persist in our efforts to develop a more effective social response to non-medical drug use and its effects. What we have to avoid are unreal expectations of success. This has a very important bearing on the measures which are considered to be justified on a weighing of benefits and costs. In the field of non-medical drug use we have to learn to live with a discouraging rate of apparent failure. At the same time we have to demonstrate persistence and endurance and enormous patience. Up to now the field has been characterized by exaggerated and competing claims of success because people have been conditioned to expect a rate of success comparable to that which may be attained in other fields. As a society we are gradually becoming aware of the extremely baffling and intractable nature of this phenomenon, and this discovery may be expected to result in more realistic expectations. This in turn will make it possible to share our respective experience and knowledge with greater candour and less defensiveness. The field of non-medical drug use is one in which we need very tough self-evaluation and the maximum of co-operation in sharing bad news as well as good. The problems are far too difficult to be successfully confronted by divided and conflicting responses, although there is room here, as elsewhere, for a healthy competition directed to testing rival theories in a spirit of underlying cooperation. In other words, a successful assault upon this phenomenon calls not merely for the massing of effort behind the most promising lines of solution but the maintenance of an essentially cooperative competition among a variety of methods. We have to avoid over-commitment to any particular response, recognizing that we are dealing with human beings whose needs and responsiveness vary enormously. There is no room in this field for monolithic responses. Variety and flexibility should be the watchwords. We have to leave room for a great variety of human intervention and relationships—in a word, for the personal touch. We have to leave sufficient room and flexibility within our institutional arrangements for the creative play of the human spirit. For it is that which contains the capacity for profound change.

THE APPROPRIATENESS AND EFFECTIVENESS OF THE VARIOUS INSTRUMENTS OF SOCIAL POLICY

In considering the extent to which we may rely on the various means of social response we must have some general impression of their relative appropriateness and effectiveness. So often it is said that we should shift from one emphasis to another. Such suggestions generally rest on an assumption that the proposed alternative will be at least as effective as the policy to be abandoned. Yet this is not always the case. One policy is to be preferred to another if it is a more efficient policy—that is, a better policy on a balance of benefits and costs. Here we are considering not merely the effectiveness of a policy in terms of its ability to achieve a certain result, but also the price which must be paid for the result. It may pay us to forego some effectiveness, or at least to risk such a loss, in return for paying a less onerous price. Still, the *result* in the form of a reduction of certain kinds of use is so important and so much to be desired in the field of non-medical drug use that many may feel it is worth almost any price. At least, they may be relatively unimpressed by talk of the price. Thus, an analysis of policy options requires consideration not merely of the balance of benefits and costs—the net yield, so to speak—but also of the ability of alternative policies to produce a desired result.

It is also important to be quite clear as to how far it is necessary to choose between various policies or means of social response, and how far they may be pursued in combination. It is not essential that we think in terms of alternatives if there is not something mutually exclusive about the various options.

THE WISE EXERCISE OF FREEDOM OF CHOICE

In our *Interim Report* we said that the emphasis in social policy should “shift, as we develop and strengthen the non-coercive aspects of our social response, from a reliance on suppression to a reliance on the wise exercise of freedom of choice.” The important qualifications here—not always given due weight in references to this passage—are, of course, the words “as we develop and strengthen the non-coercive aspects of our social response” and the word “wise”. Such a shift in emphasis is only possible in the measure that we have developed effective alternatives to the punitive approach. The objective is not freedom of choice as such, but the wise exercise of freedom of choice—that is, choice that will avoid harm.

While most people would agree with such a shift of emphasis as an ideal, there is a serious question as to how far people are capable of wise exercise of freedom of choice in actual practice, and how far we may rely on non-coercive means of social response. People do not question the soundness of the ideal; they question its practicality.

The capacity for wise exercise of freedom of choice is certainly not to be taken for granted. Wisdom does not automatically flow from the

provision of ample and accurate information, important as such information is. Information has not deterred millions of people from continuing to run the risks inherent in the smoking of tobacco and the excessive use of alcohol. In a word, there does not appear to be any magic in information alone. The wise exercise of freedom of choice in relation to drugs depends on at least three factors: the possession of accurate and adequate information about the effects of drugs; the capacity (generally based on some experience and maturity) to make rational judgments in using this information; and the personal motivation, security and discipline required to abide by the behavioural directives issuing from these judgments. While adequate information on drugs can be imparted with relative ease by a variety of educational techniques and media, the capacity to make appropriate rational judgments in actual life situations is much less easily controlled by educational techniques. The factors of personal motivation, inner security and behavioural discipline—for example, the wish and the power to delay immediate gratification on rational grounds—are difficult to reach by traditional, short-term educational methods, and are mainly developed by the profounder influences of character formation in the family, religious life, and peer-group relations. They find their main basis in the early relationship between parent and child. The ideal of a wise exercise of freedom of choice is not an easily attainable one, but it is one towards which we must continue to strive, beginning with the early influences on child development.

The wise exercise of freedom of choice must take place within a framework of influences that support and reinforce the capacity for such choice. Some of these influences may be coercive and some non-coercive. They may be either preventive or remedial in their effects, or both. Together they will constitute a climate or continuity of influence that will contribute to knowledge and judgment.

The Causes of Non-Medical Drug Use

Our terms of reference require us to inquire into the “motivation underlying the non-medical use of drugs” and the “social, economic, educational and philosophical factors” relating to such use. In the *Interim Report* we attempted to touch on some of the dominant themes concerning the causes of non-medical drug use that had emerged from the public hearings and other sources of interpretation available to us during our first year. At that time our attention was attracted chiefly to the motivation and other related factors associated with drug use by young people—in particular, the use of cannabis, the strong hallucinogens and the amphetamines. It was an attempt to place the new upsurge of non-medical drug use in some social perspective, particularly in relation to the basic concerns underlying youthful dissatisfaction and protest. It did not purport to be a comprehensive discussion on the subject. It emphasized the extent to which curiosity and the simple desire for pleasure were primary motivations for the use of cannabis, it touched on the apparent association between youthful drug use and the search for a new meaning and approach to life, and it referred to the personality problems underlying some of the more dangerous forms of drug use, such as the intravenous use of amphetamines. Among the themes which this discussion touched on were pleasure, curiosity, the desire to experiment, the sense of adventure, the search for self-knowledge and self-integration and for spiritual meanings, the collapse of religious values, the division of life into work and play, role rejection, the search for authenticity, alienation and anomie, the loss of faith in reason, the emphasis on feeling and immediate experience, the relief of stress and tension, the bombardment of the nervous system by stimuli of all kinds, depression, the feeling of powerlessness, and a lack of belief in the future. Reference was also made to pathological causes of drug use, although the Commission expressed the view that the majority of non-medical drug users were not suffering from mental illness.

Since the *Interim Report* we have attempted to develop a more comprehensive discussion of motivation and other factors related to non-medical

drug use referred to in our terms of reference. Our purpose here is not to sum up the detailed discussion of motivation in Appendix D or the discussion in other appendices of related factors, but to state the conclusions which may be drawn from these discussions for the purpose of developing social policy with respect to non-medical drug use.

As we have seen, there are many theories about the causes of non-medical drug use and no overall explanation. In fact, we cannot be sure that we know the causes or predisposing factors in any particular case. What this means is that it is extremely difficult to identify the populations at risk to non-medical drug use or to predict whether any individual is likely to become a user of drugs, and if so, one whose drug use will lead to harm. The extent to which individuals engage in non-medical drug use is very much a reflection of opportunity. Opportunity is presented by availability and by someone who gives the individual the necessary invitation, encouragement or assistance which he may need to make the first attempt. Initial drug use may reflect nothing more in the personality or environment of the user than the fact that he has associates who bring him into contact with the opportunity for use. The extent to which a person becomes involved in regular-heavy drug use, or in patterns of use that may engender harm to himself or others, may depend in some measure on particular factors in his personality and social environment. The effects of the drug itself, if pleasurable, play an important role in influencing a person to continue use, but the fact that certain persons will seek such pleasure or relief despite obvious risk of harm is probably due in part to the particular makeup of the personality, although this has not, as yet, been adequately ascertained. In many cases, it can be hypothesized that persons will seek such gratification despite the risks because they have a low tolerance for discomfort, a poor self-image or a self-destructive impulse. In other cases, the physical or mental anguish of an individual is such that recourse to drugs can be viewed as a form of self-medication.

Although it is impossible to generalize about the motivation behind non-medical drug use, certain dominant themes keep recurring. One of these themes is that many excessive users suffer from a lack of self-acceptance. They do not like themselves, and they seek escape from this pain in the oblivion of intoxication. We could reduce the vulnerability to harmful drug use very greatly if we could remove the conditions that contribute to this lack of self-acceptance. People in the treatment field attest over and over to the fact that persons who make an excessive use of drugs have this sense of failure or personal inadequacy.

Another theme that recurs is the desire to escape from an intolerable bombardment of the nervous system by environmental stimuli. There is here both a sense of discomfort and a sense of personal inadequacy. The human being feels overwhelmed by the demands upon him. He seeks, by

the effect of drugs, to insulate his nervous system against the shower of stimuli from the environment. A very prevalent condition which accounts for much drug use is stress produced by the nervous strain of modern living. Much adult non-medical drug use has the relief of stress as its main objective, particularly in the case of depressant substances, such as alcohol or barbiturates and tranquilizers.

The continued use of stimulants, in particular the amphetamines, seems to appeal in particular to those who feel depressed, incompetent, impotent or suffer from low self-esteem. Such people may seek relief from a painful consciousness of self in sedation or they may seek escape in an increased sense of energy or power. These are simply two different ways of trying to dispel the painful awareness of personal inadequacy.

An explanation that has frequently been offered for non-medical drug use, particularly by young people, is the notion of alienation. It is said that there is a widespread feeling of estrangement from established institutions and values. They no longer convey a sense of relevance. There is an inability to identify with them. The notion of alienation is used in many different senses to characterize prevailing attitudes or reactions. It is used very often to convey the dissatisfaction which young people feel with the existing educational system.

Closely akin to alienation as a feeling or condition that can lead to drug use is boredom. Many people fail to be adequately stimulated by their environment and consequently are involved in a restless search for pleasure and for new experiences. Boredom is simply one form of mental discomfort that persons can seek relief from through the use of drugs.

It is incorrect to assume that all drug use has some underlying psychopathology, but it is equally incorrect to assume that some people are not more prone to excessive use than others. It is necessary to distinguish between the occasion of initial use, for which nothing more may be necessary than the opportunity and curiosity, and the persistence which leads to excessive use and excessive involvement in a pattern of life oriented around use. For the latter transition to occur there is probably some combination of individual and social factors which explain the continued and in some cases even obsessive use of a drug.

To a person who can relax and find peace of mind by other means a sedative obviously does not represent as strong an attraction as it does to one who cannot. The peculiar quality of psychotropic drugs resides precisely in the change of mental state which they can produce. If one can produce these desired states by other means then there is less likely to be a compulsion to resort to mind-altering drugs. We all have to cope with the problems for which drug use may appear to offer some relief. The difference in degree to which we become dependent on drug use lies, to some extent, in our access to viable alternatives and our ability and willingness to make effective use of them. All must cope at some point with stress, pain, over-

whelming demands, self-doubt, anxiety, and boredom. Some are able to use conventional and sanctioned resources to cope with these states; others do not have the ability to deal with inner conflicts or have access to the means of resolving these conflicts.

While it is necessary for purposes of analysis to concentrate on the motivations for specific kinds of drug use, the single motivation which is of most concern is that of the chronic multi-drug user—the person who engages in indiscriminate and reckless drug use. Obviously, there must be motivations common to a number of drugs to explain the behaviour of such individuals. The chronic multi-drug user would seem to be driven in some cases by a strong impulse towards self-destruction. He appears bent upon oblivion, often as a result of a profound dissatisfaction with self.

Some recent studies have suggested that family influences can have an important bearing on drug use.* It is said of white middle-class families that the *high risk family* (i.e., a family in which the children have higher chances of becoming drug users) is one in which the parents are uncertain of their roles, both as parents and husband and wife; in which the mother tends to be dominant and the father lacking in leadership in the family; in which the parents are permissive, hesitant to convey their values, and indeed unsure of their values, except the belief that children should be given freedom to develop their personalities; in which there is not a proper balance of affection and discipline; in which emotions are not expressed with freedom and confidence but problems tend rather to be intellectualized; in which the relations between husband and wife do not inspire a sense of security in the children; in which there is poor communication between the parents and children; in which there is fairly heavy reliance by the parents on drugs of various kinds; in which there is a lack of religious belief, a hostility towards authority, and a progressive leaning on political and social issues. The low-risk families, by contrast, exhibit a very strong, warm, well-integrated pattern of family life, with a good combination of affection and discipline; there are warm and happy relations between the parents who accept their role as parents and as husband and wife, with leadership from the father that is authoritative but not autocratic—gentle but firm and tempered with humour; the parents are confident they know how to bring up their children and are clear as to the values which they want to transmit, with emphasis on faith in God, respect for parents, self-control, tolerance and respect for one another. Within this framework of standards and discipline children are in fact given considerable scope for freedom and personal responsibility. Because they know what their parents expect they appear to be much more confident in their judgments. The children of the low-risk family are found to be resistant to peer group pressure. Because of the direction and support they receive in the families they do not seem to be as dependent on the approval or guidance of others. It is noteworthy

* R. H. Blum, & Associates, *Horatio Alger's Children* (San Francisco: Jossey-Bass, 1972).

that the parents and children of low-risk families are much more forgiving of themselves and each other. They like themselves and each other. They do not expect too much of each other. Blum's conclusion that a certain quality of family relationships provides the necessary conditions for self-restraint and the capability to resist group pressure and resolve personal conflicts without resorting to drug use is certainly an interesting hypothesis which warrants further attempts at empirical verification.

There is no doubt that children are influenced by the importance which their parents attach to drugs and by the example of drug use which their parents give. Parents convey more by their conduct than by their words. If parents show that they rely on drugs to relieve discomfort and to change their mood, how can they expect their children not to follow their example? No doubt there are exceptional cases where children may become so disgusted by the effect of drug use on their parents that they are turned off it for good, but studies show that the children of alcoholics are more likely to become alcoholics themselves, and that the children of parents who make extensive use of prescription and other drugs are at greater risk to drug use than the children of parents who do not.

From the public point of view most concern focusses on the question of what leads people to experiment with heroin, and having experimented, to go on to the regular use which leads to dependence. There have been a great many theories, psychological and sociological, to explain opiate narcotic use and dependence, but there seems to be little in the way of a general consensus which is firmly supported by empirical evidence. There are, however, a number of hypotheses which are attractive because of their plausibility. They fit at least some part of what we intuitively feel must occur; in each case there must be some combination of psychological and environmental factors, although the circumstances vary so much that it is virtually impossible to generalize. The following factors appear to be worthy of particular consideration: the factors which produce the opportunity of first use and the willingness to accept this opportunity or invitation; the role played by the personality, the effects of the drug, and personal associations and pattern of life, in the continuing use which develops into dependence; and the factors which make for the tenacious hold of dependence and the difficulty of remaining abstinent without relapse.

It would appear that sociological or environmental factors are far more important than psychological ones in the opportunity and willingness to use an opiate narcotic like heroin for the first time. The crucial factor in initial use is availability or access to the drug, and for the non-user this almost always means coming into contact with a user. The user may also be a dealer but this initial contact is usually of a casual, friendly nature, and does not ordinarily arise out of a dealer forcing himself upon a prospective user. If an individual decides to use heroin it is generally because his curiosity has been aroused by what he has heard or observed in his contact

with another user. Why some persons who are exposed to this opportunity for use take advantage of it and why some do not is a matter of pure speculation. Obviously the initial or experimental user does not have such reservations about heroin use that he is unable to overcome them. Some studies have suggested that those who decline the invitation have more negative knowledge or attitudes about heroin than those who accept it. An increasingly important factor influencing response at this point must be the now wide-spread knowledge that one does not become instantaneously dependent on heroin but that it takes some time to develop dependence. The person who is prepared to experiment with heroin will almost always have a background of multi-drug use (although this was not necessarily true prior to the mid-1960s, and there are still important exceptions) and must be favourably disposed to drug experimentation. Today, it will generally be involvement in the multi-drug use pattern of life that will have brought the individual into contact with a user of heroin in the first place.

The personality background and makeup of this multi-drug user who is prepared to experiment with heroin is difficult to characterize. Obviously, he must be someone who has become sufficiently involved in a pattern of multi-drug use to be able to overcome any inhibitions about the use of the hypodermic needle. Consequently, those who are most at risk to heroin use and dependence are undoubtedly the intravenous users of amphetamines or 'speed'. They are already familiar with the use of the needle, and heroin offers them relief from the strain of amphetamine use. There seems to be agreement that the 'speed freak' generally suffers from serious personality problems. He frequently comes from a disturbed family background and, according to some authorities, often shows feelings of sexual inadequacy as a result of slow maturation. These characteristics have also been noted in heroin dependents. Indeed, there is a marked similarity in the background of these two types of drug users.

For those who have not used 'speed' intravenously, something more is required to permit this critical step in drug use than simply the kind of curiosity that may lead to the initial use of cannabis or even to one of the strong hallucinogens. Certainly, curiosity is there in many cases, but there is probably also a background of multi-drug use and risk-taking. Nevertheless, one must not forget that opiates are the most powerful of analgesic drugs, and therefore, they may be sought in cases of very severe physical or mental pain.

The factors which lead to repeated use and finally to the increasingly regular and frequent use which ends in dependence include the reinforcing effects of the drug and the attraction of a certain pattern of life and associations. The gratification afforded by the drug is obviously a major factor in causing an individual to repeat his use of the drug until he becomes dependent. There is both gratification in the form of a pleasurable sensation and gratification in the form of relief of distress or discomfort of some kind. The discomfort in a great many cases may be a strong sense of personal

inadequacy. This feeling of personal inadequacy may proceed from a failure to perform satisfactorily in the educational system or to find and hold satisfactory employment. A high proportion of heroin users drop out of the educational system before the end of high school, despite the fact that they are quite often above average in intelligence. Most of them have a poor record of employment in their background before heroin use. A high proportion also have a record of delinquency or antisocial behaviour of various kinds which pre-dates their use of heroin. There is also often a background of unstable family life without a strong father figure. For males, this may result in a weak masculine self-image and fears of sexual inadequacy. These observations by clinicians and others who have had the opportunity of examining heroin addicts may not have all the empirical foundation which might be considered desirable, but they are recurring themes which have to be treated as serious hypotheses. The truth about the motivation to heroin use does not seem to lie in an exclusive emphasis on factors in the pre-use personality of the user, nor on factors in the personal and social environment of the user before he took up use, nor again in the reinforcing effects of the drug and the pattern of life and associations developed after use, but rather in a combination of all of these factors. Although it is impossible to predict with any degree of assurance what types of persons are likely to come into contact with the opportunity for heroin use, likely to take advantage of the opportunity, and likely to continue use until they become dependent, there are certain generalizations that we can make of importance to the development of social policy.

Important factors in connection with heroin use are the early family influences which may produce a vulnerable personality; the existence of a multi-drug-using subculture which allows for a bridging of the traditional gap between drugs such as cannabis and the hallucinogens, on the one hand, and methamphetamine and heroin, on the other; and the pattern of life and associations which the heroin user acquires once he becomes dependent. The key factor is undoubtedly availability which turns on contact with a heroin user. Many persons of vulnerable personality are never exposed to an opportunity for heroin use. Many who are exposed do not take advantage of the opportunity. Others do not pass beyond the stage of experimentation. Still others do not pass beyond occasional, non-dependent use. What seems to be of chief importance is the formation of a close relationship with a heroin user. It is a combination of a person being psychologically or socially vulnerable to heroin use, and receiving encouragement or persuasion from another person on whom one feels somewhat dependent, that explains becoming a heroin dependent.

In the United States social conditions in the depressed urban core of large metropolitan centres have created the desperation and extreme vulnerability which is particularly fertile ground for heroin use, especially because heroin is so readily available in these same areas. We have not had similar conditions on the same scale in Canada, particularly the plight of underprivileged racial minorities. There has been some evidence, however,

that among Canada's newer heroin dependents, there are many first generation Canadians whose traditional parental values conflict with the dominant normative system.

It is necessary to place the role played by multi-drug use and so-called 'contagion' or 'infection' in some reasonable perspective. Obviously, there are not clearly defined causal relationships between the various kinds of drug use, but there are associations between them of a predisposing nature. For example, there is the association between the smoking of tobacco and the smoking of cannabis, the use of cannabis and the use of LSD, and the intravenous use of the amphetamines and heroin. Alcohol figures in the background of most multi-drug users. There is a strong correlation between it and the use of other drugs. Multi-drug use exercises an overall influence which makes it more likely that persons who have used certain drugs will use other drugs. It increases interest in drugs and drug experimentation. The more heavily involved a person is in multi-drug use the more likely he is to move on to new drug experiences. This increases the chance of the progression to heroin use, although it does not necessarily predict heroin dependence. Involvement in multi-drug use brings the users into contact with persons using a variety of drugs and is more likely to expose them to the opportunity for use of potentially more dangerous drugs.

The 'contagion' or 'infection' theory holds that drug use spreads mainly through contact with users. It is a use of the term contagion or infection by way of analogy. Obviously, the process is not strictly like that of the spread of infectious disease since in drug use the 'victim' is not infected without an intervening act of volition on his part. However, the opportunity to use heroin depends on contact with other users and, in many cases, his curiosity or interest in the use of the substance would not be sufficiently aroused without the influence of others. Nor indeed would he in many cases learn the particular procedure or practice required for effective use. In these senses, then, contact with another user is generally necessary for the spread of drug use. Controversy about the contagion or infection theory seems to be of a semantic nature. To this extent it is much like the controversy about progression. No doubt there are many factors which account for drug use in a particular case, but previous experience with drugs and contact with the users of other drugs which have yet to be tried must certainly be significant factors. Experience with other drugs whets the appetite for drug experiences, and contact with users creates the essential condition of availability. The real question is how much relative importance is to be attached to these factors and what, if anything, we can or should do about them as a matter of social policy.

One cause of drug use which has been much emphasized is peer group influence. The source of such influence is the desire of young people to be accepted by a group of their contemporaries on the street, at school or in a university. Such acceptance is necessary for the formation of friendships, the

opportunity for participation in social and recreational activity, and generally for the sense of well-being and identity which derives from belonging to a group. It seems to be a necessary form of recognition for the building of youthful self-confidence. Children who have difficulty gaining such acceptance experience considerable mental pain. Since there will be many such groups in practice into which one may gain access there will be considerable range in the choice of possible companions. But the need to win the acceptance of some group, however small, makes a child particularly vulnerable to influences which indicate the kinds of behaviour required for acceptance. Sometimes a child may overestimate the degree of compliance or conformity which is required or the extent to which a refusal to conform on some point will keep him out of the group, but the anxiety not to be considered so odd or different as to risk exclusion is a very understandable one. There is reason to believe, nevertheless, that a strong, supportive family can be an effective counter-balance to deleterious peer group influence.

The influence of the media on drug use is a subject about which there is much controversy, and it is probably impossible to evaluate the full extent of its impact. The influence of the media is no doubt not the most important factor, but it is probably one which has a significant bearing on use. Surveys have suggested that contact with users has been more important in initiation to drug use than the media—and this is what one would expect—but this does not exclude some influence for the media. It is one of many factors contributing to a general climate of awareness and the formation of attitudes about drug use. The advertising media cannot have it both ways: the vast expenditures on modern advertising are based on the assumption that advertising can influence behaviour, and the advertisers claim credit for their clients' increase in sales; they cannot now disavow any effect on drug use as a result of their efforts to make it as attractive as possible. Of course, the advertisers are only concerned with legal use, but we may assume that not only does their advertising encourage legal use but that the extent of legal use has a bearing and influence on the extent of illegal use. It is legal use in the form of tobacco, alcohol, sedatives, stimulants, analgesics and a host of over-the-counter remedies that creates the general climate of reliance on drugs to change our mood and relieve discomfort. It is this general climate that propagates the notion, overtly and subliminally, that such reliance is not only acceptable but the intelligent course of action when one is troubled by physical or mental discomfort of some kind.

Apart from advertising, the media have certainly had an influence on attitudes toward drug use. In many ways they have played a constructive role, helping to point up the issues and to spread useful information. In other ways they have tended to exploit the sensationalism in illicit drug use and to arouse unhealthy and voyeuristic interest. For example, some 'rock' lyrics and the pronouncements of several youth-oriented radio stations have probably contributed to the development of a climate of drug acceptance

among many Canadian adolescents. Similarly, it is difficult to see the constructive purpose served by a graphic television portrayal of how to use certain drugs as this is bound to arouse interest in those who are vulnerable to such experimentation. The 'how-to-do-it' approach of the media on occasion has probably been their gravest fault in their exploitation of popular interest in non-medical drug use. They have also tended to excite emotional concern and to emphasize and exacerbate the polarization of opinion in the country. The media feed on controversy, and they may also on occasion try to stimulate it. The gradual decline of the media's interest in the subject of non-medical drug use has probably been a good thing on the whole for the country.

The sensationalization of drug use can only lead to adverse results. It tends to obscure the real issues, it encourages emotional over-reaction, and it stimulates unhealthy interest. It interferes with the dissemination of accurate information and prevents the development of a balanced perspective. This, however, is a negative aspect of the influence of the media. By and large, the contribution of the media to the better understanding of the phenomenon of non-medical drug use has been a constructive one. They have made the complexity of the issues and the range of opinion more accessible to Canadians. The media, then, can be a force for good and a force for harm. It is certainly an impressive form of power, and like all forms of power it must be used with discrimination and self-restraint, and an overriding sense of public responsibility.

Now, to attempt to sum up about motivation and related factors of a social, economic, educational and philosophic nature as they bear on social policy:

1. We cannot begin to think and act effectively in the field of prevention unless we can come to some consensus about motivation and other related factors which influence the cause of non-medical drug use.
2. In the absence of some sound understanding about motivation, all that prevention can fall back on is fear—fear of the criminal law and fear of the dangerous effects of drug use.
3. Although it is likely that fear has some deterrent effect, reliance on fear has not been able to prevent a steady increase in non-medical drug use. This is partly a reflection of the extreme difficulties of law enforcement in this field, but it is also a reflection of a readiness to take risks, particularly if they are the price of present pleasure, and also in some cases of a general scepticism about the alleged dangers of certain kinds of drug use.
4. There has to be a more varied strategy than fear in order to compete with pleasure and the desire for experience. It is not enough simply to say "No". We cannot take away the drugs without putting something in their place. There has to be much more emphasis on viable substitutes and alternatives.

5. Habit plays a very large part in drug use. Breaking up habit patterns is an important aspect of stopping excessive drug use. Persons can be diverted from certain habits by involvement in other activities which fill up the space occupied by habits that are thought to be harmful.
6. While it is true that many of the theories about the causes of non-medical drug use have little empirical basis, they nevertheless represent working hypotheses, some of which can be tested empirically. We have little to lose by testing the more plausible explanations of drug use by making such explanations the basis of attempts at prevention and treatment. This is the way experimental effort has to proceed in other areas, on the basis of testing reasonable assumptions. If we take reasonable precautions, the individuals concerned will not be the worse off for our acting on plausible assumptions.
7. Several authorities have contended that there is a drug-dependent or dependence-prone type of personality. While critics of this theory have pointed out that there is little empirical evidence to support it, the notion that some people, given sufficient opportunity for drug use, are more prone to excessive use than others has strong intuitive appeal. It appears that certain personality characteristics are likely to have an influence on the decision to use or not use drugs, initially or on a continuing basis.
8. Among these psychological factors which may be presumed to have a bearing on drug use, one of the most important is the opinion which the individual holds of himself. We see much non-medical use as having its origins in a poor self-image or a lack of self-acceptance. We believe that anything that seriously undermines the individual's sense of personal adequacy is likely to render him or her more vulnerable to involvement in excessive reliance on drug use. Conversely, we feel that any influence that strengthens the individual's acceptance of self is likely to play a prophylactic role in relation to drug use.
9. Other factors of a personal nature that increase vulnerability to excessive involvement in non-medical drug use are inability to accept one's natural emotional cycle and swings of mood without recourse to drugs, a low level of tolerance for frustration or boredom, and an inability to cope with tension and anxiety by exercising self-control.
10. Both the family and the school have an important role to play in laying the foundation for self-acceptance and self-esteem and for helping the individual to develop the resources and skills for coping with mental discomfort without reliance on drugs.
11. Availability—that is, the opportunity for use and access to a supply of the drug—remains a primary matter of social concern. Without availability the vulnerability which is created by certain factors of a psychological and social nature would never be tested. Thus availability remains one of the most important causal factors. So also does contact with users. The two go closely together. It is a user who generally serves as a source of supply. The prevention of contact with users must

therefore be an important consideration, especially when persons are young, inexperienced and perhaps less able to make prudent choices.

12. One of the most compelling factors in the use of illicit, dependence-producing drugs is the pattern of life and associations which the drug user develops. He generally breaks or loses his contacts with conventional society and living. He may no longer have a legal means of livelihood, he lacks the support of individuals in the "straight" world, and he lacks a variety of normal social and recreational activities which could fill the place of his preoccupation with drugs. He becomes involved in a pattern of delinquency and crime, and he becomes dependent on his associations in the drug subculture. This dependence is almost as strong as the dependence on the drug itself; indeed, it may be stronger, or at least an important aspect or component of the drug dependence as a whole. The obsessive character of the dependence of someone who relies upon a legal drug is no less involving, but the licit nature of his drug does not compel him to divorce himself from conventional society or engage in criminal enterprise.

It is very difficult to win the chronic drug user away from this pattern of life and supportive relationships. An adequate understanding of the role played by the life style and pattern of relationships in reinforcing the hold of drug dependence and precipitating relapse is fundamental if treatment and rehabilitative efforts are to be successful.

13. In speaking of motivation we must be careful to distinguish between experimental or occasional drug use of a relatively harmless nature which is prompted mainly by curiosity, and persistence in chronic, multi-drug use which carries a high risk of harm. The motivation for the latter kind of drug use passes well beyond mere curiosity and generally involves serious social and psychological problems. At the same time, there are no clean-cut lines of demarcation between the various stages of drug use, and one stage tends to slip fairly easily and imperceptibly into another. The general climate and extent of non-medical drug use also contributes to the extent of harmful drug use. Thus it is not realistic to attempt to deal with any one form of drug use, as if it can be separated or isolated from the others, nor to attempt to base a general strategy of prevention on distinctions between harmful and non-harmful use. We have to be concerned with drug use which has a potential for harm as a whole.
14. There are certain conditions in modern life which are conducive to non-medical drug use. Among them is the bombardment of the nervous system by stimuli of all kinds. This leads to a desire to seek relief by withdrawal or insulation of some kind.
15. Influences of various kinds toward conformity in order to achieve acceptance within the adolescent peer group or the adult social group also play their part in encouraging non-medical drug use as a means of facilitating social relations and winning social acceptance.

16. Modern advertising reinforces the impression that there is a chemical relief for all states of physical and mental discomfort. It fosters a general climate of acceptance of drug use by its promotion of tobacco and alcohol. It conveys the message that these substances facilitate social relations and serve to change one's mood for the better. The impression that is created is that one cannot get along effectively without them. It is not the particular substance that is important but the idea of mood-modifying substances as a necessary aid to effective living.
17. As we have seen, the massive extent of adult drug use and the ease with which adults resort to pharmaceutical and alcoholic substances are major influences on illegal and non-medical drug use by adolescents.
18. Non-medical drug use, particularly among young people, has been seen as expressive of a general dissatisfaction with the conditions of modern life, in particular the dehumanizing conditions of urban living and employment. It is thought to reflect the sense of alienation or estrangement from modern institutions and values which many young people feel. In this sense, non-medical drug use is seen as an aspect of a general protest against or retreat from modern conditions. While its symbolic significance seems to have declined somewhat in recent years, and there is much less ideological connotation to non-medical drug use than there was a few years ago, there is still in our opinion a close association between non-medical drug use by the young and a general feeling of dissatisfaction and pessimism about the prospects for a satisfying and self-fulfilling life. This is related to the rapid rate of change, doubts about the continuing relevance and utility of knowledge acquired in the formal educational system, doubts about the ability to find appropriate employment after a long period of formal education, and concern about the future of the human community arising from such problems as over-population, pollution, racial tension, economic instability and the threat of global war. These conditions give rise to a certain degree of depression for which relief is sought in non-medical drug use.

In summary, there are factors in the personality or psychological make-up of the prospective user, in his close personal relations and environment in the family, school, and the peer group, in social and economic conditions, and in the general attitude of the society towards drug use, as reflected by advertising, the media and the practices of the adult population, which predispose and encourage the individual to engage in non-medical drug use. The drugs themselves, as a means of relieving discomfort and affording pleasure, exercise a powerful attraction for people who have been conditioned more and more to seek comfort and pleasure. Modern advertising encourages the notion that there is no reason to put up with discomfort. A whole consumer industry turns on keeping people in pursuit of pleasure. While such a philosophy has its uses, it conveys a hedonistic approach to life which makes it increasingly difficult for people to tolerate the dissatisfactions of everyday living.

Section IV

The General Proportions of the Problem

The outstanding characteristic of the phenomenon of non-medical drug use is that it is always changing. Moreover, there are great differences in the drugs used and the levels of use among the different using populations. It is, therefore, virtually impossible to sum up the phenomenon at any given time with a reasonable degree of accuracy. At the same time, there is a strong desire for a sense of the general direction in which the phenomenon is moving, for an identification of its significant trends, and an estimation of the relative seriousness of its various manifestations. Despite the limitations of generalization about such a multi-faceted and rapidly changing phenomenon, there is an understandable desire for some general perspective. What people wish to know may be expressed in a general question such as: Is the situation getting worse or better?

Such a general question, however, requires some definition. We must know what we mean by the "situation" and what we would consider an improvement or a deterioration. What, in the terms of the title of this section, is to be considered the "problem" for purposes of an attempt at a general appraisal? The "situation" or the "problem" might be considered to encompass all the negative aspects of the phenomenon of non-medical drug use, including not only the harm caused by the drugs themselves, but also the harm caused by various aspects of our individual and social response to non-medical drug use. In subsequent sections we address ourselves to social policy. In the present section we propose to limit ourselves to a very general commentary on the relative potential for harm and the extent of the various forms of non-medical drug use.

It is not possible to summarize the detailed discussion of effects, sources and distribution, and extent and patterns of use which is contained in Appendices A, B and C. For an adequate understanding of the Commission's findings on these matters it is necessary to read these appendices. Nevertheless for the reader's convenience, certain general observations may be made here to draw attention to particularly significant points. The reader should

bear in mind, however, that many of these general statements will inevitably be oversimplifications, and he should have recourse to the appendices for a fuller understanding of the necessary qualifications.

It is our impression that the overall extent of non-medical drug use, in one form or another, is increasing rather than decreasing in the general population. In any event, we do not see any signs of a marked trend in the opposite direction. The rate of overall increase may be diminishing, and it may even be reaching some kind of plateau or stabilization, but there are no clear signs of a movement in the direction of a general reduction in the extent of use. This observation is of particular significance, since the attitudes reflected in the general drift or tendency of non-medical drug use have an influence on individual decisions.

The widespread use of alcohol and tobacco continues to provide the supporting climate for other non-medical drug use. So long as their use continues to spread in all age groups of the population, including adolescents, there is little hope of being able to develop a general climate of restraint with respect to non-medical drug use. The damage caused by alcohol and tobacco is now so well understood that our continued toleration of these forms of non-medical drug use, and our apparent inability to bring about any significant reduction in them, raise profound doubts about our seriousness of purpose with respect to the phenomenon of non-medical drug use as a whole.

The effects of alcohol, its distribution (as well as the dependence of government on it for revenue), and the extent of its use are set out in Appendices A, B and C. A careful reading of this material can leave one in no doubt that alcohol is, and is likely to remain, Canada's most serious non-medical drug use problem.

From almost any point of view the effects of the excessive use of alcohol are more harmful than those of any other form of non-medical drug use: in physical and mental injury to the user, in increased mortality from a variety of causes, and in drug-related behaviour causing personal injury to others. If we take the total incidence of such effects—which reflects the total numbers engaged in the excessive use of alcohol—there is little comparison with other drugs. To name a few, alcohol is a major factor in a large proportion of traffic accidents, violent crimes, suicides, serious family disruptions, and numerous physiological and psychological disorders in North America. Estimates of the extent of the use of alcohol vary, but we think it is reasonable to assume that at least three-quarters of the population over 15 years of age have used alcohol. The proportions who use it regularly and the proportion who use it excessively are, of course, much smaller, but they represent populations of considerable size. For example, there are probably at least twenty times as many alcoholics in Canada as there are opiate dependents. In addition, there are another several hundred thousand problem drinkers who would not be considered alcoholics at this time.

As a public health problem the excessive non-medical use of alcohol is in a class by itself. Although there is growing public awareness of the seriousness of this problem, and a good deal of editorial leadership from the press, the liquor industry continues to fight a rear-guard battle to persuade the public not only that alcohol is not a drug, but that the problem presented by its excessive use is grossly exaggerated. Governments are expressing increasing concern about the problem, but so long as they draw a substantial revenue from the sale of alcohol, their own seriousness of purpose may be suspect. It would appear that in the present social context the answer lies in greater self-restraint by the general public. The existence of a highly profitable liquor industry, legal distribution, and a large government revenue from sale, all make it clear that we cannot look to any significant restrictions on availability as a potential mechanism to reduce the extent of alcohol use.

The decision of several provincial governments in recent years to lower the drinking age to 18 or 19 is also in apparent conflict with public expressions of concern about the problems of alcohol, particularly among young people. From local surveys since this change in the law there is reason to believe that it is likely to have led to an increase in the consumption of alcohol by persons above the age of 18 or 19 and to an increased availability of alcohol (through friends) for persons under that age.

It has been proposed that raising the relative price of alcohol (in relation to disposable income) would be an effective means of reducing the use of this drug in the general population and thus decreasing the problems associated with heavy alcohol consumption. While some change in patterns of use would undoubtedly occur in some individuals as a result of an increase in the cost of licit alcohol, we feel that this is not likely to be a practical or effective method of bringing about a significant reduction in compulsive dangerous alcohol use. Although such measures might reduce the incidence of some of the acute adverse effects of drunkenness in certain populations, even with this increased financial burden alcohol is likely to be one of the last goods to be sacrificed by the dependent user. In certain low income families with an alcoholic member, an increase in the cost of alcohol would likely result in an even greater diversion of very limited funds away from food and other essential commodities to the purchase of the drug. Further deterioration in child nutrition might be a more probable result than a significant reduction in alcoholic adult drinking under such conditions. Moreover, if the cost of licit alcohol were raised substantially, there would likely be a significant increase in the illicit manufacture and distribution of alcohol, which, as indicated in Appendix B, is already extensive in certain parts of Canada. Finally, it seems unlikely that the general public would support the level of taxation and law enforcement which would be required to bring about a substantial change in heavy alcohol consumption.¹

Not only is the excessive use of alcohol serious in itself, but it also figures prominently in various patterns of multiple drug use. Indeed, alcohol plays a significant background role in most dependent drug use, including the use of the opiate narcotics. It also frequently becomes the alternative or substitute for other forms of harmful drug use. For example, in many of the cases in which there is an apparent cure of opiate dependence, the user turns to the excessive use of alcohol sometimes with even more deleterious consequences. Alcohol also plays a serious role in producing harmful effects in combination with other drugs, such as the barbiturates and other sedatives. In our *Cannabis Report* we commented on certain additive effects of alcohol and cannabis.

The use of tobacco continues to be a very serious public health problem and is one of the leading contributing factors in disease and premature death in Canada. Tobacco use, itself, does not generally lead to injury to third persons, as in the case of alcohol, nor does it cause psychological damage, but it creates a serious risk of physical harm and substantially increased mortality rates in heavy users. It also creates strong psychological dependence which makes it difficult for users to break the tobacco habit despite its dangers to health and, frequently, its offensiveness to others. Indirectly, tobacco smoking is often a significant factor in property damage, personal injury and death caused by urban and forest fires. Today about 40 per cent of Canadians over the age of 15 smoke tobacco regularly. There has apparently been some slight reduction in recent years in the total proportion of the population engaged in the use of tobacco, but there has been little change, or perhaps some increase in the number of heavy users. As well, there are indications of increasing use among young people—particularly teenage girls. There is no reason to believe that there has been a decrease in the incidence of harmful effects of this drug. The use of tobacco continues to play a significant role in multiple drug use as indicated by its close associations with the use of alcohol, cannabis and other drugs. The general presence of inadequately attended cigarette dispensing machines and lax sales practices of many vendors make tobacco easily available to all, including the very young. Increasing concern is being expressed over the right of non-smokers to breathe uncontaminated air in public places often dominated by heavy smokers.

In addition to alcohol, there has been an apparent increase in the non-medical use of other sedative drugs, in particular, barbiturates and related sedative-hypnotics and minor tranquilizers. These drugs have close affinities with alcohol. Indeed, many complications arise from their use in combination with alcohol. It is impossible to estimate the full extent of the non-medical use of these drugs, particularly by adults, because the supply for such use often originates under prescription which is not routinely monitored. But there has been increasing evidence of an illicit market in certain of these drugs and clear indications of an increase in their use by young people. The extent of the non-medical use of barbiturates and related drugs in Canada is not comparable to that in the United States, however. As part of the general increase in the use of drugs with sedative action—sometimes referred to as

'downers'—there apparently has been a continuing increase in the use of cannabis, which is sometimes taken for its tranquilizing effect.

Among the sedative drugs, the most evident increase is in the use of certain non-barbiturate sedatives and minor tranquilizers, which in recent years have tended to replace the barbiturates in many medical applications. The rapid increase in the non-medical use of methaqualone (e.g., Mandrax®) is particularly noteworthy. There have been a number of reports of the use of these drugs simultaneously with alcohol by adolescents to achieve very intense intoxication.

We believe that because of the widespread adult reliance on these drugs with sedative-like action from supply originating under medical prescription and the stressful conditions of modern life for which they appear to offer relief, it is reasonable to expect a continuing increase in their non-medical use in all groups of the drug-using population. These drugs vary considerably in their potential for harm, but all have the capacity to produce dependence, and certain of them have significant potential for physical toxicity and death by overdose, either alone or in combination with other drugs. Barbiturates are the drugs most frequently involved in fatal self-poisoning or suicide, perhaps because they have been prescribed for the last half century, while most of the other non-barbiturate sedative-hypnotics have only been developed during the last 10 or 15 years, and consequently are less known to the medical profession and the public. Even the less potent of the sedative drugs can have serious effects when used, as they often are, with other drugs such as alcohol. One of the most insidious aspects of this general category of drugs is the tendency of those who are attracted by them to use them in combination.

There continues to be an extensive non-medical use of stimulants. The desire for stimulant effects is, of course, reflected in the heavy consumption of caffeine in the form of coffee, tea and cola drinks. There is also widespread non-medical use of amphetamines and amphetamine-like drugs. Although most of the non-medical use of amphetamines in the general population apparently involves oral use of relatively moderate quantities, much concern has developed over the high-dose intravenous use of methamphetamine or 'speed' by certain groups. The total number of persons involved in the intravenous use of amphetamines appears to be fairly stable, and may even have declined somewhat in recent years. It would appear that many who drop out of the 'speeder' population after a few years, because of the severe strain which the 'speed' life style imposes, are more or less balanced by the initiation of new users. It is our impression, however, that the non-medical use of oral amphetamine and amphetamine-like drugs, such as Dexedrine® and Preludin®, often supplied from an illicit market, has increased in recent years, particularly among young people. The medical use of amphetamines has decreased in the past few years, and may be expected to decrease still further as a result of the restrictions imposed by the Federal Government at the beginning of 1973 on the purposes for which such drugs may be used in

medical treatment. But it is likely that the non-medical use of such drugs, supplied by an illicit market, will continue to increase. As well, many persons who have been obtaining amphetamines on prescription will likely continue to receive from legitimate sources other amphetamine-like prescription drugs which are not subject to the above restrictions. Taken occasionally and in moderate doses, amphetamine and amphetamine-like drugs are not particularly harmful, but tolerance develops with frequent use and they have a significant capacity for producing strong psychological dependence in certain users. At higher doses, they can produce serious psychological and physiological disorders. Additional problems are frequently caused in 'speeders' by the use of unsterile injections and insoluble contaminants in illicit drugs. The reliance which many people place on these drugs for additional energy and confidence to meet the demands of modern life creates a serious health hazard. In recent years there has been an increase in the non-medical use of the stimulant cocaine, although it has not yet become very extensive.

There has been a marked increase in recent years in the non-medical use of the opiate narcotics, particularly heroin and methadone, and an apparent increase in the proportion of young people engaged in such use. In 1972, the records of the Bureau of Dangerous Drugs showed approximately 9,000 "habitual" users of illicit opiate narcotics (formerly called street addicts). There is reason to believe that the total number of opiate dependents shown on the records of the Bureau at any particular time is considerably below the total number actually in the country at that time, but it is not known by how much it falls short. It is felt that sooner or later most of the opiate-dependent persons will come to the attention of the police, the treatment agencies or private physicians, who are the main sources of the information on which the Bureau bases its records, but there is a considerable timelag and other gaps in information channels which probably leave a significant proportion unknown to the Bureau at a particular time. There has also been a greater dispersal of opiate narcotic use in recent years and a marked increase in experimental or occasional use, so that the total number of persons in the process of becoming dependent is likely to be less exposed to law enforcement and treatment personnel than it formerly was. Our own estimates of the probable number of opiate dependents in 1972, based on field studies and other Commission research as well as estimates by the R.C.M. Police made about the same time, suggest that the actual number is probably somewhere between 12,000 and 15,000. In order to avoid any danger of underestimation we are prepared to accept the figure of approximately 15,000 as a reasonable estimate of the number of daily users of opiate narcotics in Canada at the present time. We certainly feel that this is a safe estimate, and that there is little likelihood that the total number exceeds this figure. There is reason to believe, however, that there are also tens of thousands of persons experimenting with the use of opiate narcotics, an unknown proportion of whom are probably at serious risk of becoming dependent. Thus the situation with respect to the use of opiate narcotics is a

dynamic one, with a definite tendency to increase in numbers and to spread geographically. At the present time, such use is still very heavily concentrated in British Columbia—and to that extent the use of opiate narcotics can be regarded as still very largely a regional problem—but there has been a significant increase in use and dependence in recent years in certain parts of the prairie provinces, particularly Alberta, and in certain parts of eastern Canada, especially in Toronto and other cities in southern Ontario. In some areas, there are reports of youthful “primary methadone addicts” who have not been significantly involved in the use of heroin.

The chief danger from the use of opiate narcotics is, of course, the great difficulty in curing a typical case of opiate dependence. Where the drug must be obtained in an illicit market the consequences of such dependence are likely to be very serious both for the individual and the society in the form of drug-related crime. There is also the general effect of such a style of life on the health of the dependent person, and the ever present danger of death or serious injury from various causes including suicide, accidents, drug toxic reactions or overdose, and numerous diseases and other effects of unsterile intravenous injection. Even where the drug may be obtained legally, as in the case of methadone maintenance, such dependence is a serious qualification of the individual's freedom and a pharmacological necessity which renders him increasingly vulnerable to the will of others. The increase in the experimental use of opiate narcotics, and in the extent of opiate dependence in Canada in recent years is undoubtedly a serious problem requiring determined efforts by government and community resources of various kinds. It is impossible to estimate how it may develop in the future. It may well not take the course it has followed in the United States. There are number of circumstances that are different in the two societies, including the absence in Canada of the urban ghetto phenomenon on a comparable scale. At the same time, there is no ground for confidence that opiate narcotic use is about to level off or decline in Canada. It requires continuing vigilance.

In recent years there has been an apparent levelling off, and possibly even a decrease, in the total number of persons using LSD, although there is still a relatively heavy concentration of such use among high school and university students and certain other populations. At the same time, there has been a marked increase in the use of MDA, a physically more toxic hallucinogen with certain amphetamine-like properties. There has also been an increased use of PCP. In spite of persistent rumours of exotic psychedelic drugs in North America, there is little indication of significant use of hallucinogenic drugs other than cannabis, LSD, MDA and PCP in Canada. The use of the stronger hallucinogens remains for the most part an occasional one. Heavy dependent use of these drugs is uncommon. Few of the psychedelic ideological connotations of the mid-1960s are associated with current drug use. Typically, hallucinogens are now among a wide variety of drugs involved in a general multiple drug-using pattern of behaviour.

The use of volatile solvents appears to be concentrated in certain parts of the country, of which Manitoba is one. It is our impression that while such use may have increased locally from time to time it has, on the whole, levelled off or perhaps even declined slightly in recent years. There have been changes in the form of the substances most frequently used; in particular, nail polish remover has tended to replace glue, although the same volatile solvents are generally involved. While a few solvent-related deaths (primarily involving plastic bag suffocation) have been given considerable attention, serious adverse reactions from volatile solvents do not appear to constitute a significant public health problem at the present time.

As indicated in preceding sections, the dominant pattern of non-medical drug use is one of multiple use. The individual about whom there is major cause for concern is the youthful chronic multi-drug user who is indiscriminate in his choice of drugs. He is sometimes referred to in the drug culture as a "garbage head". The hazards of drug use increase with indiscriminate experimentation and the mixing of drugs which have additive or potentiating effect. It is impossible to estimate the size of the hard core chronic multi-drug-using population—there are certainly several thousand—but this group likely has a potential for stimulating the spread of harmful drug use out of proportion to its size.

There is reason to believe that as youthful drug users have become more experienced and sophisticated they have been able to reduce the number of acute adverse reactions—"bad trips" or "freakouts"—or have been able to cope with them better. In the last year or so, emergency treatment services have seen a smaller number of such cases than they did in the late 1960s.

Thus, we may sum up by saying that while some forms of non-medical drug use appear to have levelled off, and even in certain cases decreased, non-medical drug use as a whole has continued to increase; alcohol and tobacco remain the major sources of drug-related public health problems; the dominant pattern has become one of multiple drug use, with a hard core of indiscriminate, chronic multi-drug users who encourage the spread of harmful drug use; there has been a marked increase in experimental and dependent use of the opiate narcotics; and there is some evidence that hallucinogen users have become more sophisticated in their ability to avoid acute adverse reactions.

NOTE

1. It should be observed that the proponents of this suggestion think of it as a preventive rather than a curative measure. They concede that it might not have too much effect on the present population of users with alcohol problems, but they contend that by discouraging future use it would reduce the incidence of new cases of harmful use. We remain skeptical. We believe that two factors are likely to defeat the purpose of this measure: the compulsive character of the increasing reliance on alcohol by persons who become problem drinkers and alcoholics, and the relative disposable income of the middle-class who contribute significantly to the total extent of excessive use of alcohol. The size of this middle-class, the extent of its reliance on alcohol and its relative disposable income are factors which were never encountered before in the experience of other countries and other periods on which the proponents of relative price rely. For the others in the population, this proposal, as we suggest above, is more likely to result in a further deterioration in child nutrition and other family neglect and in the development of an illicit market. Further, we place no confidence in the proposals of differential taxation to encourage preference for the so-called "moderate" beverages, such as beer. Both beer and wine may be used to excess, and the excessive use of both are capable of leading to alcoholism and other drug-related problems. We are not convinced by the evidence that the differences in the rate and other conditions under which excessive use of the various alcoholic beverages can lead to alcohol-related problems justifies a public policy of encouraging the use of some rather than others.

Part Two

Legal Controls

The Use of the Criminal Law Against Non-Medical Drug Use

The law is the chief instrument of social policy. It provides the framework for all the others. Whether we should use the law at all, and if so, to what degree, in attempting to reduce non-medical drug use is first of all a matter of principle, but it is also a pragmatic issue—whether we receive a return or benefit from the use of the law that justifies the cost. This turns on the relative effectiveness of the law in this field—the extent to which it is an effective deterrent of the behaviour involved in non-medical drug use—and also on the price which must be paid for the use of it in terms of various adverse effects on individuals and the society as a whole.

THE ISSUE OF PRINCIPLE

These issues were discussed in considerable detail in both our *Interim Report* and our *Cannabis Report*. For the convenience of the reader a portion of that discussion, dealing with the views of Mill, Hart and Devlin, is reproduced in Appendix F.2 *Whether, in Principle, the Criminal Law Should Be Used in the Field of Non-Medical Drug Use*. The manner in which the issue of principle is usually presented is whether we should attempt to coerce the individual by means of legal sanctions to abstain from behaviour which many claim really only concerns himself. It is said that the law should only be concerned with preventing people from causing harm to others and not with preventing people from causing harm to themselves by freely chosen behaviour. On this view, the law should not attempt to prevent non-medical drug use altogether, but should only be directed against the behavioural manifestations of such use which cause or threaten harm to others.

Others take the view that the state has a right and a duty to use the law to try to prevent people from causing certain kinds of harm to themselves, but in any event they dispute the assumption that non-medical drug use which causes harm to the user does not generally also cause harm to other persons and the society generally. They argue that the drug use which causes

harm to the individual often causes harm to others, including the members of his family and those who depend on him for work or other social contribution. Harmful drug use may cause acute mental suffering to the members of the user's family who may fear for his health, and in some cases, his life. It may have a very deleterious effect on marital relations and relations between parent and child. It may result in inefficiency and absenteeism in work. Finally, there is the additional cost to the society of treatment and welfare for the care and support of the person who engages in excessive drug use and those who are dependent on him. All of this is harm to third persons and the society generally, quite apart from any physical injury or property damage which the user may cause directly to others by such drug-induced or drug-related behaviour as impaired driving or violence of various kinds.

There is also a more subtle effect or harm of excessive non-medical drug use which many people fear, and that is a kind of general demoralization or lowering of the tone and determination required for a healthy society. There is a fear that an increasingly widespread resort to drugs to escape from the challenges of living will by its example encourage a general spirit of escape and passivity that will undermine the moral fibre and vigour of the society. People fear the development of a style of life in which an increasing number of individuals turn from an attempt to grapple in an active and constructive manner with society's problems to seek solace and oblivion in drugs. This anxiety is reflected in the concern with what is called the "amotivational syndrome"—the passivity and lack of goals which certain observers say they have seen in chronic users of hallucinogens and other drugs. People who are particularly concerned about this possible effect of excessive drug use on the general tone of the society often refer to what they feel is the relative lack of initiative, vigour and enterprise in other countries where drug use is understood to be extensive and thought to be in some measure responsible for such characteristics in the population.

Those who are opposed to the use of the law in connection with non-medical drug use dispute the right of the society to expect or demand a certain level of social contribution from the individual, or at least dispute the right of the society to attempt to compel that contribution by legal coercion. They do not deny that excessive drug use may cause considerable inconvenience and hardship to others who must depend on the user in various ways, but they deny that this justifies the application of legal sanctions to the user if the harm he causes or threatens to cause is not physical injury to the person or property of others. The reasoning would be that none of us is perfect and we all fall short in one degree or another of discharging our various responsibilities to others, and we all disappoint the hopes of others to some extent through freely chosen behaviour that reflects our personal weaknesses or defects. People should not be punished for failing to measure up to what other people expect of them in personal relations or work, even if such failure is attributable to weakness of character or self-inflicted injury of some kind. In effect, we would not consider punishing people for neglecting

their health in various ways. In Section II *Some Preliminary Observations*, we referred to some of these forms of ill health which may be considered to be more or less self-inflicted as a result of such behaviour as excessive work, or overeating, and concluded that if they are distinguished from self-indulgence in drugs it must be partly on the basis of a moral judgment. They do not appear to present the same threat to established values. They do not carry the same connotation of escape from challenge or responsibility, although in fact they may be every bit as much a form of escape and may indeed be attributable to psychological factors similar to those which underlie excessive drug use.

Obviously, there are more than moral values involved. There is concern about the specific physical and mental harm which certain kinds of drug use may cause to the individual, quite apart from consequences to society. There is particular concern about the possible effect of certain kinds of drug use on the mind. The most serious risk of immediate harm is that of toxicity, which sometimes results in severe physical or mental damage and even in some cases, death. This is the danger presented by poison. Any drug can be poisonous if the dose is sufficiently high. Thus drug use raises in the first instance the question of how we should deal, as a matter of public policy, with poison.

Poison constitutes a danger or trap, particularly where children are concerned, that we would like to be able to remove altogether if possible. There are two possible legislative policies in relation to poisonous substances: one is to attempt to prevent exposure to them altogether; the other is to provide people with sufficient warning of their dangers. (A third possible policy in some cases is to provide certain safeguards in the custody of poisons.) The first policy is not available where the substance which is a poison is required for some other purpose. Thus a great variety of substances that are required for industrial, domestic or personal use cannot be prohibited, although they are poisonous if ingested or inhaled. All that the law can do in such cases is to insist that these substances be accompanied by suitable warning of their dangers. This is the situation with respect to certain of the volatile solvents and gases. Although they can be used for purposes of intoxication and are poisonous, they cannot be prohibited because they are necessary or useful in a variety of industrial, domestic or personal applications (and some have important medical uses as well).

Prohibiting the production and distribution of a dangerous substance for which there is no necessary or beneficial use does not appear to give rise to any great philosophic issue. It is somewhat paternalistic and shows a lack of confidence in the good sense and capacity of the individual to avoid harm, but this is not particularly offensive. After all, it is unrealistic to rely, where we are not obliged to do so, on a complete and sufficient dissemination of the information about a dangerous substance which people must have if they are to avoid harm, particularly where children are concerned. But acceptance of the necessity of a complete prohibition of production and

distribution turns on the assumption that the substance does not in fact have any beneficial use which justifies or necessitates exposure of people to the risk of harm. The decision as to whether to prohibit all production and distribution turns on a weighing of the beneficial uses or effects, if any, and the potential for harm.

Official drug control policy, as reflected in international agreements and domestic legislation, does not recognize any beneficial uses or effects, for purposes of such evaluation, other than accepted medical or scientific ones. It does not recognize beneficial uses or effects of a non-medical or non-scientific nature, even when these effects may be essentially indistinguishable from those produced by certain drugs when taken under medical advice. This is a serious bone of contention between drug users and official policy. Many drug users claim that there are beneficial effects to be enjoyed from certain forms of non-medical drug use. They claim that the contribution which certain forms of drug use make to the general sense of well-being and to personal equilibrium by reducing tension, increasing self-knowledge, releasing self-expression and facilitating social relations is a beneficial effect which should be weighed against the potential for harm of such use. Official policy does not agree. Where drugs have been made legally available for non-medical use, as in the case of tobacco and alcohol, it is not because of their alleged benefits but rather because a policy of prohibition is not considered to be feasible. They are made legally available, despite their potential for harm, because so many people want them that it is neither politically possible nor otherwise practicable to attempt to suppress them.

It is not difficult to understand why in the case of non-medical drug use, official policy chooses not to weigh alleged benefits in the scales against potential for harm. The alleged benefits are highly controversial, and there is no clearly established framework or consensus of values to which official policy can refer for purposes of determining what is benefit and what is not. There are conflicting value judgments as to whether the pursuit of particular forms of pleasure is a good thing or not.

A principal reason, however, for the refusal to recognize the alleged benefits of certain kinds of drug use is the difficulty of enjoying the benefits on a regular basis without running the risk of dependence or other serious form of harm. This possibility is so closely related to enjoyment of the benefit that it is difficult to give the benefit an independent value apart from it. Others argue that so long as it is possible to enjoy the benefit by occasional or even regular, moderate use without becoming dependent or suffering other serious harm, the benefit is entitled to have its full value acknowledged. This point of view assumes that it is in fact possible for the majority to make a relatively harmless use of a particular drug. This depends on whether the drug lends itself to a controlled, measured use so as to avoid harm, and whether the majority of people will have the necessary understanding, judgment, skill, self-restraint or other required qualities to make such a controlled, measured use.

The difficulty with a general prohibition against drug use of a certain kind is that it is not directed specifically to acts of use which are likely to cause harm. It is an attempt to prevent such acts by preventing all acts of use. Unfortunately, if the law wishes to intervene in this preventive manner, before harm has occurred or is immediately threatened, it has no choice from a practical point of view but to adopt this broad-gauge approach. It is not practicable for it to attempt to direct itself to use of a certain character since it is extremely difficult to define, detect and prove use of a certain degree of potential dangerousness. It would be obliged to make a certain course or pattern of use, such as chronic, dangerous drug use, a crime and seek to prove this by a variety of circumstances. This would be tantamount to making not specific acts but rather a general condition the basis for the imposition of criminal sanctions.

Whether the interference with the freedom of the majority will be justified will depend on the value which one places on the protection of the minority from the particular risk of harm. This will depend on the nature of the harm and how often it is likely to occur. On the other side of the equation is how important access to the substance is for the majority. To what extent are they likely to be seriously inconvenienced or deprived by its prohibition? Obviously, these judgments cannot be reduced to scientific proportions. They depend on approximate numbers or rough orders of magnitude but they also depend on the quality of the harm on one side and the quality of the deprivation on the other. Numbers, however, undoubtedly play a significant role, particularly where they are very heavily on one side or the other—that is, either on the side of those who desire the substance or on the side of those who are opposed to its use. Most often the issue will arise when a majority are opposed to its use. Then the issue of principle is whether the majority should interfere with the freedom of a significant minority to make a relatively harmless use of a substance (assuming such a use can be made of it) in order to protect a much smaller number from harm. We do not see how there can be any absolute objection in principle to such a policy. It must depend on the circumstances in each case. We recognize that it is not only desirable but necessary to impose a variety of restraints or limitations upon freedom in the interests of order, protection and welfare, and indeed, in the interests of maximizing the total, beneficial freedom of everyone. *Non-medical drug use is not a category of behaviour which has a claim to some special immunity, not even to some special relative immunity, as in the case of freedom of speech. Thus, we conclude that the state has a right in principle to prohibit the production and distribution of dangerous substances, and that whether it is justified in doing so in a particular case depends on the facts—and in particular, on a weighing of the deprivation it is causing against the harm it is preventing.*

The use of the criminal law to prohibit the simple possession or use of drugs for non-medical purposes raises slightly different issues than the prohibition of production and distribution. It is not simply a question of

whether one should attempt to interfere with the freedom of the individual to engage in the non-medical use of drugs, since this is done indirectly by the prohibition against production and distribution. There is the further issue of whether a person should be punished for non-medical drug use. Although drug legislation usually prohibits simple possession rather than use as such, it is really use against which it is directed.

The personal use of drugs involves less apparent or obvious harm to others than their distribution. With distribution one is engaging in an act which is clearly going to have direct consequences for other people. The distribution may not be the direct, immediate cause of the resulting harm—there must be an intervening act of volition by the user, which can be considered the more immediate cause—but the distribution facilitates the harm or offers the occasion without which it could not occur. It is, therefore, considered to be an act which necessarily involves a greater degree of responsibility towards another person than the act of personal use. At the same time, as we have seen, a convincing argument can be made for the view that there is no harm which one causes to oneself that does not indirectly cause some harm or loss to others. Moreover, there is the view that by one's own use one supports an illicit market and contributes to a general community and climate of use that assures that others will be attracted or stimulated into use. This view looks at drug use as a whole as involving several kinds of behaviour—production, distribution, possession, use, proselytization, and so on—and as constituting a culture or pattern of life which, as a whole, exercises an unwholesome attraction. All who participate in this pattern and make some reinforcing contribution to it share some responsibility for it. The user who creates demand is also responsible with the seller for the existence of the illicit market. The seller could not exist without the user. On this view, if one wants to undermine the market one must discourage demand. This was the approach taken by the British Columbia Court of Appeal in the 1960s to justify severe sentences in cases of simple possession. "If use of this drug is not stopped," the Court said, "it is going to be followed by an organized marketing system."¹

A prohibition against simple possession is also said to be related to law enforcement against trafficking from a slightly different point of view. The object of the law against trafficking is to reduce availability or supply as much as possible. Accordingly, it is argued, availability must be attacked as a whole; the law must be concerned with possession of any kind, regardless of quantity, although it may be more severe with possession that raises a presumption of intent to traffic than with possession for personal use. Further, it is argued that it is not always easy to detect traffickers in possession of a quantity that raises a clear presumption of intent to traffic, and that it is of some utility to be able to hold them for simple possession. Assuming that an offence of simple possession makes some contribution to the effectiveness of law enforcement against trafficking, this benefit must be weighed against the

harm which the criminal law prohibition of simple possession causes to the individuals affected.

The application of the criminal law against simple possession or use by one who is dependent on a drug raises a particular issue of principle. Since the user is compelled by his dependence to obtain and use the drug, it is akin to making dependence itself a crime. Where, as in the past, there has been little by way of viable options for the drug-dependent person because of the difficulty of effecting cure, such an application of the criminal law raised a serious moral issue. Where there is an option such as methadone maintenance the issue does not present itself in such an acute form. One may also take the view that the person who wills the acts which lead to drug dependence also wills the acts which are the inevitable consequence, including the further acts of simple possession which may be subject to criminal punishment.

THE EFFECTIVENESS OF THE CRIMINAL LAW

The effective application of the criminal law in the field of non-medical drug use is subject to many difficulties. To begin with, the behaviour against which it is directed is one in which a great many people wish to engage. Moreover, it is not one which encounters strong moral resistances or inhibitions in the individual, like murder, armed robbery, assault and other forms of behaviour which come under severe moral censure, apart from the criminal law. Further, and perhaps most important of all from the point of view of law enforcement efficacy, is the fact that there is very seldom anyone who has the necessary interest or inclination to complain of a violation of the law. While drug use may cause specific harm to the user and general harm to the society, it does not generally cause or threaten specific harm to others of a nature that would lead to complaint. Those who are generally most concerned—the members of the user's family—are not likely to invoke the criminal law process against the user. What this means in practice is that law enforcement officers receive comparatively little help from the ordinary type of complainant in their efforts to detect and prove offences. Finally, the prohibited behaviour is one which can be carried on in private and is easy to conceal. For these reasons the police are obliged to rely very heavily on special methods of law enforcement, including extraordinary powers of search and seizure, the use of force to effect entry and recover evidence, the use of undercover agents and informers, and the encouragement or instigation of offences. These methods were discussed in some detail in our *Interim Report* and our *Cannabis Report*. For the convenience of the reader a portion of the discussion in the *Cannabis Report* is reproduced in Appendix F.6 *Special Methods of Enforcement*. While we expressed concern about these special methods of law enforcement we concluded that they were apparently necessary because of the particular difficulties which the police face in the

field of non-medical drug use, and that they must be considered as a special cost of law enforcement in this field.

Even with these special methods, the rate of success with law enforcement against both distribution and simple possession (or use) is relatively disappointing. The relative effectiveness of law enforcement against trafficking is discussed in the following section on *The Control of Availability*, and is the subject of detailed description and comment in Appendix B *Legal and Illegal Sources and Distribution of Drugs*. It is perhaps sufficient to observe here that police have acknowledged at the international level that under the most efficient conditions of enforcement they cannot hope to intercept more than between five and ten per cent of the illicit traffic in drugs.²

Law enforcement against simple possession (or use) gives rise to even greater problems than law enforcement against distribution. The police can make more cases against users than they can against distributors, but in terms of effectiveness they probably make less relative impact on the total extent of use than they do on the total amount of distribution. The reasons for this are fairly obvious. Simple possession or use can be much more a private or concealed activity than distribution. There are infinitely more users than traffickers so that to create a real or impressive risk of detection of use it would be necessary to assign very large numbers of police—much more than we have at present or could reasonably hope to provide—to the task of law enforcement against use. The best the law can hope to do is to create a sufficient risk of apprehension to act as an effective deterrent. Because, however, of the peculiar nature of drug crimes to which we have referred above—the fact that they usually take place between consenting parties, that there is seldom a “victim” to complain, and that the behaviour is easy to conceal—there are limits to the extent of the initiative which the police can take to increase the incidence of apprehension and thus the apparent risk of use. As we put it in the *Cannabis Report*:

... A real fear of being discovered in the private use of cannabis could only be developed and maintained by using the methods of a police state. It would require very large numbers of police, pressure on vast numbers of people to act as informers and ruthless use of the powers of search. Obviously, the society could not tolerate it. Even in a police state, such methods can only be invoked to suppress activity that can plausibly be presented as threatening the security of the state.³

The effectiveness of law enforcement against use varies somewhat as between the different kinds of drug use, but in the case of cannabis and the strong hallucinogens it would appear that less than one per cent of a reasonable estimate of the total number who have ever used are convicted each year, and the proportion is not much higher in the case of the opiate narcotics. What this means is that the actual risk of apprehension, which is the essential basis of deterrence, is not very great.

The deterrent effect of the law against simple possession or use does not rest entirely on the fear provoked by the actual risk of detection and apprehension. It also rests on the relative severity of the criminal law consequences of such apprehension. This turns on the likelihood of prosecution and conviction, if caught, and the likely severity of sentence or other consequences of conviction, such as effect on future employment. All of this depends very much on how seriously the society regards the particular offence. The stigma which attaches to an offence depends very largely on social attitudes towards it. Such attitudes change from time to time. Certain offences lose their relative importance in the public view. This is particularly true of offences in the field of public morality.

Fear of the stigma and other consequences of criminal law conviction do not alone account for the deterrent effect of the law. Many people obey the law simply because it is the law. With them, the law has moral authority, quite apart from any adverse consequences of violation. They obey the law out of a sense of moral obligation to do so. To inspire this sense of voluntary compliance the law must command moral respect. At least it must not profoundly offend the sense of justice or fitness of things. Most people will obey the law even if they disagree with it, as long as it does not strike them as outrageous. (In some cases, of course, the law may become subject to virtual nullification because of lack of a sufficient majority interest in its enforcement.) In the field of non-medical drug use the majority support the law, although they have varying degrees of enthusiasm about it. But there is a significant minority who do not feel an obligation to obey it, or who are so opposed to certain aspects of it that they feel justified in defying it. These, unfortunately, are the people about whom we are most concerned—who are so determined to engage in certain kinds of drug use that they are willing to run the risk of criminal prosecution and conviction. With such people the law obviously has little deterrent effect. Yet they include the people who are most likely to become involved in chronic, harmful drug use. They are, generally speaking, risk takers, and the risk of running afoul of the law is treated in much the same way as the risk of causing physical or psychological harm to themselves. It is extremely doubtful that people who will run the risks inherent in certain kinds of drug use will be deterred by the criminal law, particularly where the risk of detection is relatively slight. The majority of the people who are likely to be deterred by the criminal law, however slight the risk of detection, are also less likely to make an excessive or harmful use of drugs. They are, generally speaking, more cautious and prudent. While it is probable, therefore, that the law deters a large number of people simply by virtue of its existence, regardless of the actual danger of being caught in a case of violation, these are not for the most part the kind of people who are at particular risk of harmful drug use. Those who are at such risk are much less likely to be deterred for a combination of reasons: their strong opposition and even hostility to the law because it represents what they feel is an unjustified interference with their personal

freedom; the relatively slight danger of being caught; their general readiness to run various kinds of risk; and their strong desire to engage in drug use.

The deterrent effect of the law is also based on the assumption that the individual is in a position to be influenced by rational considerations. In the case of non-medical drug use the individual is often in the grip of a strong desire for pleasure, and in the case of dependence, a virtually irresistible compulsion. It must be obvious that the law can have little deterrent effect with the drug-dependent person. The only case in which it could possibly exercise a deterrent effect is where the individual can change his dependence to a drug which he can legally obtain, as in the case of methadone maintenance. This is by no means a course which all opiate-dependent persons are prepared to accept. At the same time, the law does have in many cases a gradually wearing-down effect. Persons who are dependent on heroin often become so tired of the struggle to maintain their habit in the illicit market that they are finally ready to consider alternatives.

THE COSTS OF THE CRIMINAL LAW

Undoubtedly the prohibition against simple possession has some effect on use. The question is whether the effect which it has justifies the various costs which it entails. These costs were discussed in some detail in the *Cannabis Report*. It is sufficient to make brief reference to them here. They apply, of course, not only to the prohibition against simple possession but also to the prohibition against distribution as well.

For our purposes it is not only necessary to consider the effect which the existing law may have on the extent of non-medical drug use, but also the effect which any proposed change in the law may have on attitudes and behaviour. We must not only weigh the benefit of the existing law against its costs; we must also weigh the benefit of any proposed change in the law against its costs.

The creation of an illicit market. The first and undoubtedly the most serious of the costs of criminal law prohibition is the encouragement and maintenance of an illicit market. When we prohibit something which a lot of people desire and are willing to pay money for we invite people to create an illicit market. In effect, we create a profitable enterprise for criminally inclined elements. Moreover, the more effective our law enforcement against distribution is, the more attractive we make the market for professional criminal elements by forcing the price up and putting a premium on skill and daring. This is an inherent and unavoidable cost of a prohibition of distribution. It may be said that there is nothing inevitable about this result if people will obey the law. Unfortunately, it is inevitable that a significant number will disobey it, particularly where a much desired activity is involved, and thus give the illicit market its basis. A closely related cost is that people who persist in seeking to use the prohibited drug will be obliged to have contact with criminal elements and in the process will be exposed to a variety

of illicit drugs and drug use. Some will be introduced to other kinds of crime and become part of a criminal pattern of life.

Effect on resort to treatment. A second important cost of criminal law prohibition is that by making conduct criminal we may inhibit people from seeking help from other sources, such as medical treatment. The fear of being identified as a drug user, and thereafter being subject to surveillance, may make some people reluctant to approach treatment facilities. The attitude of treatment personnel may also be adversely affected by the characterization of the conduct as criminal. Sometimes treatment authorities are placed in an awkward position in relation to law enforcement authorities, as, for example, where they are expected to furnish evidence of violation of probation or parole.

Effect on drug education. A somewhat related cost is the inhibiting effect which legal prohibition can have on drug education. When a drug is legally prohibited it is necessary to start from that position. It is difficult to talk about the pros and cons of the use of that drug as if there were a legally free choice. Yet the drug is being used and will be used. People must therefore understand not only the legal consequences of its use but the physical and mental consequences as well. In discussing the pros and cons of drug use in this way one is placed in the rather ambivalent moral position of assuming that one's listeners may choose to break the law if there are not other good reasons for not using the drug. Yet it is unrealistic today to assume that they may not do so and merely to observe that there is no point in discussing the pros and cons of the particular drug use so long as the law prohibits it. Of course, the problem can be dealt with under the guise of a critical evaluation of the law—what are the facts about a particular form of drug use and to what extent does the law reasonably reflect the facts? But it is difficult to avoid ambiguity as to whether the law deserves to be obeyed. What all this amounts to is that so long as the law purports to make the decision for us it is difficult to discuss drug use in the context of a wise exercise of freedom of choice. The law has really removed the subject from the domain of personal discretion. To discuss it in terms of personal choice is to appear to act on the assumption, explicit or implicit, that a number of people are going to break the law.

The legal characterization of certain kinds of drug use can affect drug education in other ways. A legal characterization that is at extreme variance with the facts, as has been the case with cannabis, can undermine not only the credibility of the law, but also the credibility of information about other drugs. For example, it has been said that the very misleading impression which the law has conveyed about cannabis, by placing it on the same basis as the opiate narcotics, has led many young people to question the truth of information about more dangerous drugs, including heroin.

Demand on law enforcement resources. A further cost of using the criminal law against the distribution and use of drugs is that it requires a

disproportionate application of law enforcement resources. The numbers involved in drug-related behaviour are such that we would have to employ a very large proportion of the time of police, prosecutors and judges to make a serious, systematic effort to enforce the law. This would inevitably have an adverse effect on other law enforcement priorities. Any crime which involves such a high proportion of the otherwise non-criminally inclined population is bound to produce a very drastic distortion in the application of law enforcement resources if a really serious attempt is made to enforce the law.

In fact, the law can only deal with a very small proportion of the actual number of offenders, and this on a haphazard basis. The effort is at most a token one. It serves to create some risk of apprehension, but probably not a sufficiently serious or credible one to act as a very effective deterrent. Even this token effort requires a considerable application of resources. The result is that for a very substantial expenditure there is really only a modest yield. The purpose of law enforcement in this field is simply to reinforce to some extent the moral injunction of the law. It is to keep the law from becoming a dead letter.

The stigma of criminal conviction. Finally, there is the cost of the criminal law for those who are apprehended and convicted. There is first of all the stigma of exposure to the criminal law process and of a criminal record.⁴ This stigma can have an adverse effect on self-image. It can make the individual feel a criminal and in the end seek to fulfil this opinion of himself. The reaction is: If I am going to be treated as a criminal I shall act like one. This stigma or self-image will often drive a person to seek support and reinforcement in a deviant or criminal subculture. This proceeds from a feeling that one has been rejected or ostracized by society and that the only people who can be turned to for friendship and support are those who have been similarly stigmatized. The process of stigmatization also produces feelings of humiliation and degradation which can cause acute mental suffering. Finally, the stigma affects the attitude of others in the society to whom the offender must eventually turn for help and opportunities of various kinds in the process of rehabilitation or reintegration. These attitudes will affect the ability to obtain satisfactory work and to establish healthy relationships and social involvement. It is only by such means that a new self-image and sense of identity can be shaped.

The effect of imprisonment. In addition to stigma, there is the severity of the other results of conviction and sentence. This is to be seen chiefly in the effects of imprisonment, although one should not overlook the relative deprivation of freedom as well as the uncertainty involved in probation or parole. The adverse effects of imprisonment, including the physical violence to which inmates are exposed, have been described many times. They are well known. Perhaps the chief objection to imprisonment is that it tends to achieve the opposite of the result which it purports to seek. Instead of curing offenders of criminal inclinations it tends to reinforce them. This results from confining offenders together in a closed society in which a

criminal subculture develops. The offender becomes dependent on this subculture in many ways and constantly exposed to the unwholesome influence of criminally oriented individuals instead of law-abiding and socially adjusted individuals who could have a more beneficial influence on him. Status in this subculture depends on skill in crime. The models and leaders to whom the offender is obliged to turn for emulation are leading criminals. Prison is in many ways a finishing school for criminals. There the offender has an opportunity to perfect his criminal knowledge and skills. It is difficult to think of a better way to train people for crime than to bring all the criminal types together in one long live-in seminar on crime. There would be, on the contrary, every interest in trying to keep them away from one another. An awareness of this problem is reflected to some extent in attempts to segregate young offenders from mature offenders, and also in an increased emphasis on serving the sentence in the community rather than in prison. As yet, however, we are only paying lip service to this awareness. We continue to bring the criminal elements of the country together for a kind of continuing education or refresher course.

These adverse effects of imprisonment are particularly reflected in the treatment of drug offenders. Our investigations⁵ suggest that there is considerable circulation of drugs within penal institutions, that offenders are reinforced in their attachment to the drug culture, and that in many cases they are introduced to certain kinds of drug use by prison contacts. Thus imprisonment does not cut off all contact with drugs or the drug subculture, nor does it cut off contact with individual drug users. Actually, it increases exposure to the influence of chronic, harmful drug users.

In the course of our investigations many addicts have testified that it is impossible for them to break the drug habit if they cannot escape from the associations which encourage it. Inmates in a provincial institution with a special treatment program stated that the chief reason for their failure to give up drugs was the inability to break away from the drug environment. The effect of the reinforcing prison subculture in a provincial institution without a special treatment program was described by an observer as follows:

... the heroin users as a group were a well-defined social force in the wing not only organizing the importation and distribution of illicit drugs, but also providing every possible support and justification for use. The users continually discussed all aspects of use, reaffirming the validity of continued use, and criticising those agencies and institutions which try to prevent it. Pictures of needles and mottos extolling the virtues of heroin use covered the walls of some cells. News from the street scene in the city arrived with all speed and regularity. The large amount of spare time and the dull routine made heroin use the most popular topic of discussion among users, by default if not for other reasons. It becomes obvious why a sizeable percentage of heroin users get their first fix in prison itself, or after release, from a friend met in prison. ...

Status among the heroin users was determined by drug experience on the street, the user's status on the street following him into the institution for better or worse. Status was positively related to extent of use, length of habit, involvement in the drug trade, and criminal sophistication. There was a special reverence for the long-time users, as if their mere existence was some type of endorsement for use.

Inmates would brag among themselves about the size of their habits, like drinkers bragging about their ability to hold their liquor. One inmate would tease another by calling him a 'chippy-fixer, hophead or bomber freak'. In this way it seemed that the users' condemnation of the 'lesser' drugs somehow justified use of heroin.⁶

NOTES

1. *R. v. Hartley and McCallum* (No. 2), [1968] 2 C.C.C. 187 at 189 (B.C.C.A.).
2. *Urgent International Action Against the Abuse of, and the Illicit Traffic In, Narcotic Drugs and Psychotropic Substances*, Report by the Secretary General of the United Nations to the Second Special Session of the Commission on Narcotic Drugs, July 28, 1970, E/CN.7/530, p. 3.
3. *Cannabis Report*, p. 290.
4. Absolute or conditional discharge (see Appendix F.8) avoids a conviction, but there is a plea or a finding of guilt in such a case, and there is a criminal record of it. *The Criminal Records Act*, R.S.C. 1970 (1st Supp.) c.12 as amended by the *Criminal Law Amendment Act*, 1972 (1972 Stat. Can. c. 13, s. 72), provides that a person who has been convicted or given an absolute or conditional discharge may apply after a certain period of time for a pardon and removal of his criminal record. In the case of conviction of an indictable offence, the period is five years after satisfaction of sentence; in the case of summary conviction, two years after satisfaction of sentence; and in the case of absolute and conditional discharge, one year for summary conviction sentences and three years for other offences. The pardon is granted on recommendation of the National Parole Board. The effect of such pardon is to vacate the conviction or discharge, remove any disqualifications resulting from it under federal legislation or regulations and prevent any question being asked concerning the conviction or discharge in connection with service in the armed forces or employment in government or in any enterprise under federal jurisdiction. Thereafter the record of the conviction or discharge may be disclosed only for certain limited purposes with the authorization of the Solicitor General. It is impossible to destroy all record of a criminal case in any real sense once it has entered into the data collection process, but even where it has been removed and put beyond the effective reach of ordinary enquiry, the knowledge which a lot of people invariably possess of a conviction (or a plea or finding of guilt in the case of absolute or conditional discharge) and the knowledge which can be obtained by interested parties through careful investigation cannot be eliminated.
5. The Commission carried out studies of one federal and four provincial correctional institutions in an attempt to evaluate the effect of their programs on drug offenders. The federal institution was Matsqui, which is discussed in Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada*. The provincial institutions consisted of two with special treatment programs, one of the traditional kind without a special program and a wilderness camp based on the "outward bound" philosophy. Some of this study was carried out by participant observation with investigators living in on a 24-hour basis or during the day. There was some reference to the conclusions of these studies in the *Treatment Report*. Because of differences in the drug offender populations in these institutions (for example, two of the provincial institutions had few, if any, opiate-

dependent inmates) there is really not a basis for comparing the effect of their respective programs. The major generalization to be drawn from these studies is the effect of the prison subculture in encouraging preoccupation with drugs and some drug use in prison. The notable exception to this general impression was the wilderness camp, in which there was apparently very little drug use during the period of confinement. It should be noted, however, that the population of the wilderness camp did not include any opiate-dependent persons. The studies of these correctional institutions were carried out by L. McDonald, R. Solomon, and A. Caplan under the general direction and supervision of John Hogarth.

6. Solomon, "Study of Traditional Institution," Unpublished Commission Research Paper, 1972 (edited by L. McDonald), pp. 69 and 73-74.

The Control of Availability

INTRODUCTION

We are concerned here with the legal controls on the production and distribution of psychotropic drugs for legal and illegal purposes. In a subsequent section we consider legal controls with respect to the user of such drugs, including use of the law to punish the unauthorized possession of drugs for purposes other than distribution. Many regard the offence of simple possession as an aspect of the control of availability and may well consider the distinction between control of availability and control of the user an artificial one. In recent years, however, there has been an increasing disposition among those concerned with the problem of non-medical drug use to draw a distinction, for policy purposes, between distribution and use. While it is emphasized that supply and demand are closely related, and both must be successfully dealt with if there is to be an effective effort to deal with the problem of non-medical drug use, there has been increasing recognition that a different public policy may be appropriate with respect to the user, particularly the drug-dependent person, than that which is appropriate for the trafficker. This recognition is reflected in the provisions of international conventions offering the possibility of non-punitive alternatives to punishment, albeit of a compulsory nature, for purposes of treatment, education and rehabilitation of drug "abusers". For this reason it is felt to be convenient to analyse the legal controls of availability and the user in separate sections.

Canadian drug control policy operates within a framework of international policy. That policy is expressed to some extent in the form of international agreements, but it is also a matter of on-going cooperation between governmental agencies. There is an international community of opinion on drug control problems that influences national policies. This follows inevitably from the fact that both legitimate trade and the illicit traffic in drugs are international in scope, and the policies of one country can have consequences for other countries. It is very difficult, if not impossible, for one country to pursue an effective control policy without cooperation from other countries. This is because of the widely dispersed sources of production

in the world, the great variety of routes of distribution, and the relatively porous nature of customs frontiers.

The non-medical use of drugs in various forms which give rise to social concern is a world-wide phenomenon. The relative importance of different kinds of drug use—the predominant drugs involved, the extent and patterns of use, the social and economic context of use—vary from one country to another, but the problem cannot be confined within national boundaries. The drugs used in one country often originate in other countries. Drug users travel from one country to another, influencing the spread of use where they go. Thus we have world-wide production and distribution of drugs being used for non-medical purposes and a great deal of mobility in drug-using populations. The problem can only be effectively grappled with on an international scale by cooperation between nations.

Countries which refuse to cooperate in the suppression of illicit production of harmful drugs within their borders can make it virtually impossible for other countries to prevent the creation of a large illegal source of supply within their own territories. Countries in which there is a large overproduction of drugs for medical purposes can be a source of diversion of drugs to non-medical purposes in other countries. Countries which refuse to cooperate in law enforcement can be a means by which drug offenders may escape effective control. It is therefore appropriate that we begin with consideration of the international control system.

INTERNATIONAL CONTROL POLICY

INTERNATIONAL DRUG CONTROL AGENCIES

The Economic and Social Council of the United Nations has the general responsibility for developing and supervising the administration of international drug control policy. From time to time it receives directives or requests for policy development from the General Assembly, and its decisions and recommendations are subject to approval by the latter. Four agencies play an important role in assisting it to discharge its responsibility: the Commission on Narcotic Drugs; the World Health Organization; the International Narcotics Control Board; and the Narcotics Division of the Secretariat of the United Nations (referred to in practice as the Division of Narcotic Drugs).

The Commission on Narcotic Drugs makes policy recommendations to the Council, the Secretary General and governments. It submits reports and draft resolutions for adoption by the Council and makes decisions for its own guidance or action, or as suggestions for action by governments. One of the most important functions of the Commission has been the development and supervision of the international agreements for drug control, in particular the *Single Convention on Narcotic Drugs, 1961*,¹ and the *Convention on Psychotropic Substances, 1971*.² The membership of the Commis-

sion consists of thirty states chosen from among those which are important in the production or manufacture of drugs and those in which drug dependency or the illicit traffic in drugs constitutes an important problem. Canada has been a member of the Commission from the beginning.

The World Health Organization (WHO) is required by the international conventions to provide the Commission on Narcotic Drugs with an assessment of drugs from a medical and scientific point of view and with recommendations as to the appropriate control measures, if any, to be adopted with respect to a particular drug. These technical findings and recommendations of the WHO are developed by its Expert Committee on Drug Dependence. From time to time this committee and others appointed by the WHO for special purposes publish reports on matters of concern in the drug control field.

Under the *Single Convention*, the International Narcotics Control Board (INCB) supervises the administration of the system of annual estimates of drug requirements for medical and scientific purposes and the annual statistical returns of quantities acquired and consumed. The Board's function is to keep a watch on the quantities of drugs in circulation for approved purposes, to survey the effectiveness of international efforts to suppress the illicit traffic, and to note, and attempt to remedy, any failure of a member state to comply with the control provisions of the Convention. Where the Board has reason to believe that the aims of the Convention are being seriously endangered by reason of the failure of a country to carry out its provisions, or that a country is in danger of becoming an important area for illicit production, distribution or use, it is empowered to investigate and call upon the government concerned to adopt remedial measures. If the government concerned fails to cooperate the Board may report with recommendations to the Council, the Commission and the General Assembly. If necessary, the Board may recommend an embargo on distribution to and from the country concerned. The Board has similar functions and powers under the *Convention on Psychotropic Substances*, 1971, although there are some important differences in the extent of the control measures under the two conventions.

The Division of Narcotic Drugs is a section of the United Nations secretariat which assists the other agencies in the preparation and implementation of control policy. It prepares documentation and carries out a variety of other functions of an investigative, informational and advisory nature.

THE REQUIREMENTS OF THE INTERNATIONAL AGREEMENTS

The *Single Convention on Narcotic Drugs*, 1961, to which Canada is a party, applies to the opiate narcotics, including opium, heroin, morphine, codeine, pethidine (meperidine) and methadone, to cocaine, and to cannabis and cannabis resin (that is, marijuana and hashish), and to extracts and tincture of cannabis. It does not apply to THC, which is governed by the *Convention on Psychotropic Substances*, 1971.

The general object of the *Single Convention* is to restrict the drugs covered by it to medical and scientific purposes. In its preamble the Convention observes that "the medical use of narcotic drugs continues to be indispensable for the relief of pain and suffering and that adequate provision must be made to ensure the availability of narcotic drugs for such purposes", but that at the same time "addiction to narcotic drugs constitutes a serious evil for the individual and is fraught with social and economic danger to mankind".

To meet the two objectives of a controlled use of these drugs for medical and scientific purposes and the suppression of their use for other purposes, the Convention calls for a general system of controls to be adopted by the member states. The essential purpose of these controls is to assure that the production of narcotics is limited to the reasonable requirements of the member states for medical and scientific purposes and that there is no leakage from the legal supply required for such purposes to an illicit market.

The controls include a requirement of licence for manufacture, import, export, and internal distribution, and a requirement of medical prescription for the supply of drugs to individuals. They also require that those involved in manufacture and distribution keep records of their transactions which can be verified by government authorities.

As indicated above, the system calls for annual estimates of the requirements of drugs for approved purposes. The International Narcotics Control Board may fix the estimates for any party who fails to supply them. Parties are required to remain within their estimates, and their performance in this regard is verified by annual reports of quantities acquired and consumed. Amendments to the *Single Convention* adopted in March 1972³ have strengthened the controls over the cultivation of the opium poppy and the production of opium for legitimate purposes.

The drugs covered by the *Single Convention* are listed in four schedules. The principal one is Schedule I, which contains the major natural and synthetic opiate narcotics, cocaine and cannabis. Schedules II and III, which include certain of the less potent natural and synthetic opiate narcotics such as codeine and propoxyphene, are subject to somewhat less severe control regimes. Schedule IV contains drugs which are also included in Schedule I, such as cannabis and heroin, but with respect to which the parties are invited to adopt stricter measures, and in particular to restrict their use to *research* of a medical or scientific nature. In response to a recommendation by the World Health Organization, which was approved by the Commission on Narcotic Drugs in 1954, most states agreed to prohibit the manufacture and importation of heroin for medical purposes. The Canadian decision not to license the manufacture and importation of heroin went into effect on January 1, 1955.* Only a few parties to the *Single Convention*, including Great Britain, permit the use of heroin for medical purposes.

* *Debates*, House of Commons, Canada, June 1, 1954, p. 5313.

Drugs may be added to a schedule, removed from the Convention, or transferred from one schedule to another by the Commission on Narcotic Drugs, acting on the recommendations of the World Health Organization. The decisions of the Commission are subject to review by the Economic and Social Council at the request of any party.

The Expert Committee on Drug Dependence of the World Health Organization, in a series of annual reports, has attempted from time to time to throw light on the principles which govern its recommendations concerning control measures. In its Sixteenth Report the Expert Committee adopted a definition of "drug abuse" as, "Persistent or sporadic excessive drug use inconsistent with or unrelated to acceptable medical practice", and it defined "drug dependence" as "A state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterized by behavioural and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effects, and sometimes to avoid the discomfort of its absence".⁴ In the same report the Committee indicated the following criteria for the decision as to whether a drug should be subject to control:

There are two main conditions, at least one of which must exist for a drug to be considered in need of control:

(1) The drug is known to be abused other than sporadically or in a local area and the effects of its abuse extend beyond the drug taker; in addition, its mode of spread involves communication between existing and potential drug takers, and an illicit traffic in it is developing;

(2) It is planned to use the drug in medicine and experimental data show that there is a significant psychic or physical dependence liability; the drug is commercially available or may become so.

If neither of these conditions is fulfilled, there is no need for an agent to come under consideration for control. [P. 11.]

The *Single Convention* requires the parties to it to make the following acts which have a bearing on availability punishable offences, when carried out intentionally and contrary to the provisions of the Convention: cultivation, production, manufacture, extraction, preparation, possession, offering, offering for sale, distribution, purchase, sale, delivery on any terms whatsoever, brokerage, dispatch, dispatch in transit, transport, importation and exportation. "Serious offences" are to be liable to "adequate punishment particularly by imprisonment or other penalties of deprivation of liberty".⁵

The *Convention on Psychotropic Substances*, 1971, applies to drugs not covered by the *Single Convention*. They are listed in four schedules. Schedule I contains the hallucinogens: DET, DMHP, DMT, LSD, mescaline, parahexyl (Pyrahexyl or Synhexyl), psilocine (psilocin or psilotsin), psilocybine (psilocybin), STP (DOM), and THC and all its isomers. Schedule II contains amphetamines and certain drugs with amphetamine-like action: amphetamine, dexamphetamine (dextroamphetamine), methamphetamine,

methylphenidate, and phenmetrazine. It also contains phencyclidine (PCP) which is not a stimulant and has no medical use in humans. It was originally introduced as an anesthetic and is now used only in veterinary medicine. PCP is commonly combined with LSD and is often represented as mescaline or THC on the illicit market in Canada. Pharmacologically this drug would be more appropriately included in Schedule I. Schedule III includes the short-acting barbiturates: amobarbital, cyclobarbital, pentobarbital, and secobarbital. It also includes glutethimide, which is a widely prescribed hypnotic. Schedule IV contains long-acting barbiturates, non-barbiturate sedative-hypnotics, minor tranquilizers and stimulant-anorectics: amfepramone (diethylpropion), barbital, ethchlorvynol, ethinamate, meprobamate, methaqualone, methylphenobarbital, methyprylon, phenobarbital, pipradrol and SPA. It is to be noted that Schedule IV does not include chlordiazepoxide (Librium®) and diazepam (Valium®), the two most widely used minor tranquilizers. These drugs were originally included in the draft protocol but were withdrawn over the strong objections of several states.

A psychotropic substance shall be considered for control under one of these schedules of the Convention if, in the opinion of the World Health Organization, it has the following attributes:

- (a) that the substance has the capacity to produce
 - (i) (1) a state of dependence, and
 - (2) central nervous system stimulation or depression, resulting in hallucinations or disturbances in motor function or thinking or behaviour or preception or mood, or
 - (ii) similar abuse and similar ill effects as a substance in Schedule I, II, III or IV, and
- (b) that there is sufficient evidence that the substance is being or is likely to be abused so as to constitute a public health and social problem warranting the placing of the substance under international control⁶

If the World Health Organization makes a finding to this effect, it is required to communicate to the Commission "an assessment of the substance, including the extent or likelihood of abuse, the degree of seriousness of the public health and social problem and the degree of usefulness of the substance in medical therapy, together with recommendations on control measures, if any, that would be appropriate in the light of its assessment".

Whereas under the *Single Convention* the Commission on Narcotic Drugs must either accept or reject the WHO recommendation as to appropriate control measures, under the *Convention on Psychotropic Substances* the Commission is free to adopt control measures different from those recommended by the WHO. On this point, the Convention provides:

The Commission, taking into account the communication from the World Health Organization, whose assessments shall be determinative as to medical and scientific matters, and bearing in mind the economic, social, legal,

administrative and other factors it may consider relevant, may add the substance to Schedule I, II, III or IV. The Commission may seek further information from the World Health Organization or from other appropriate sources.⁷

In the case of a substance which is already included in one of the schedules, the Commission may decide, on the basis of the World Health Organization's opinion and the other factors indicated above, to transfer the substance from one schedule to another or to delete it from the schedules altogether.

As in the case of the *Single Convention*, decisions of the Commission on Narcotic Drugs with respect to the scheduling of drugs under the *Convention on Psychotropic Substances* are subject to review by the Economic and Social Council. There is also provision for relieving a party of certain obligations created by a decision of the Commission if it is unable to fulfil them. In such a case the party must, however, apply certain minimum controls.

The kinds of control contemplated by the *Convention on Psychotropic Substances* are similar to those under the *Single Convention*: licensing of manufacture and distribution, import and export permits, prescription, record-keeping, safeguards against theft or other diversion, inspection, and annual returns. An important difference between the two conventions is that the *Convention on Psychotropic Substances* does not require annual estimates of drug requirements.

The extent to which the various kinds of control are required under the *Convention on Psychotropic Substances* varies as between the different schedules. The strictest control measures are reserved for the hallucinogens in Schedule I. The parties are required to "prohibit all use" of such substances "except for scientific and very limited medical purposes by duly authorized persons, in medical or scientific establishments which are directly under the control of their Governments or specifically approved by them".⁸ The Convention requires especially strict controls on their manufacture, distribution and possession for such purposes.

The parties are required to limit the manufacture, distribution and use of the drugs in Schedules II, III and IV to medical and scientific purposes. The drugs in these schedules, unlike those in Schedule I, are to be generally available for medical purposes, but in most cases subject to prescription. Their manufacture, import, export and other distribution are to be under licence or other similar control measures. The import and export of substances in Schedule I are to be carried out by governmental agency. In addition, there must be with respect to the drugs in Schedules I and II a prior exchange of authorizations between the governments of both the exporting and importing countries. This requirement is essentially the same as that provided by the *Single Convention* and is stricter than that required for the substances in Schedule III. It is sufficient, with respect to the latter, for the

government of the exporting country to send the authorities of the importing country a copy of the exporter's declaration within ninety days of the shipment. There is no special requirement for the import and export of the drugs in Schedule IV. A party to the Convention may, however, notify all other parties through the Secretary General that it prohibits the import into its country of one or more of the substances in Schedules II, III and IV. (It has direct control over the import of substances in Schedule I.) If a party has been notified of such a prohibition, it shall take measures to ensure that none of the substances specified in the notification is exported to the country of the notifying party. The desire for such international cooperation with respect to importation was one of the chief concerns behind the development of the *Convention on Psychotropic Substances*.

The Convention requires that records be kept by manufacturers, importers, exporters and wholesale distributors of drugs acquired, held in stock and disposed of by them. In the case of drugs in Schedule II (primarily amphetamines and drugs with amphetamine-like action), detailed records must also be kept by pharmacists, hospitals and scientific institutions of acquisition and disposal. In the case of drugs in Schedule III (short-acting barbiturates and drugs with similar action), parties are merely required to assure that information concerning acquisition and disposal by such persons or institutions is readily available. In the case of drugs in Schedule IV (various other sedatives and stimulants) the requirement is merely that manufacturers, importers and exporters keep records showing quantities manufactured, exported and imported.

The parties are required to furnish to the International Narcotics Control Board annual reports of quantities manufactured, exported, imported and held in stock by manufacturers, in the case of substances in Schedules I and II, and of quantities manufactured, exported and imported in the case of substances in Schedules III and IV.

The parties are further required to maintain a system of inspection of manufacturers, exporters, importers, and wholesale and retail distributors of psychotropic substances and of medical and scientific institutions which use these substances, and to assure that there is adequate precaution against theft or other diversion of drugs.

Apart from the very specific and strict controls applicable to the substances in Schedule I, the terms of the *Convention on Psychotropic Substances* appear to offer more flexibility to the parties than those of the *Single Convention*. Subject to the specific requirements referred to above, the general obligation of a party is to "limit by such measures as it considers appropriate the manufacture, export, import, distribution and stocks of, trade in, and use and possession of, substances in Schedules II, III and IV to medical and scientific purposes".⁹ There is some flexibility with respect to the necessity of prescription in the case of substances in Schedules III and IV. Finally, article 22 of the Convention with respect to penal provisions does not indicate the specific kinds of conduct which must be made a

punishable offence, as does article 36 of the *Single Convention*. Instead, it refers generally to any action contrary to such legislation and regulations as the parties see fit to adopt in fulfilment of their obligations under the Convention. This would appear to offer more flexibility as to the choice of conduct which must be made a punishable offence. Paragraph 1.(a) of article 22 provides:

1. (a) Subject to its constitutional limitations, each Party shall treat as a punishable offence, when committed intentionally, any action contrary to a law or regulation adopted in pursuance of its obligations under this Convention, and shall ensure that serious offences shall be liable to adequate punishment, particularly by imprisonment or other penalty of deprivation of liberty.

Paragraph 1.(b) of article 22, which contemplates non-penal provisions of control for the user of psychotropic substances will be referred to in Section VII of this report, *Control of the User*.

CANADIAN LEGISLATIVE AND ADMINISTRATIVE PROVISIONS WITH RESPECT TO THE CONTROL OF AVAILABILITY

THE NARCOTIC CONTROL ACT

The controls called for by the *Single Convention on Narcotic Drugs, 1961*, are provided in Canada primarily by the *Narcotic Control Act*¹⁰ and the *Narcotic Control Regulations* made under the Act. The Act applies to the opiate narcotics, including heroin, to cocaine, and to cannabis in all its forms.*

The Act is framed in the traditional criminal law form, consisting of prohibitions, penalties and provisions concerning enforcement. It prohibits unauthorized importing and exporting, trafficking, possession for the purpose of trafficking, simple possession, and cultivation. The Regulations prescribe the conduct that is authorized with respect to the drugs covered by the Act. They establish a system of control over the distribution and use of the drugs for medical or scientific purposes. The system consists of licensing, prescription, record-keeping, safeguards against loss or theft, reporting, inspection and audit.

*Licensed dealers.*¹¹ A licence is required from the Minister of National Health and Welfare to engage in the manufacture or distribution of narcotics. A permit is required for the importation or exportation of narcotics and is valid only for the particular transaction for which it is issued. A licensed dealer may supply a narcotic drug only to another licensed dealer, a pharmacist, a practitioner (doctor, dentist or veterinarian), a hospital or another person authorized by the Act or Regulations to have possession of such a drug. He may only supply a drug upon receipt of a signed written order, and he must verify the signature of the person from whom he received

* See footnote concerning PCP on page 80.

the order, if it is unknown to him. He must keep a record of the full particulars of all drugs in which he deals, including name, quantity, sources and destination. The premises, manufacturing processes and conditions of storage, technical staff, inventories, and records of a licensed dealer are all subject to inspection by inspectors of the Department of National Health and Welfare. A licensed dealer must keep full and complete records for a period of at least two years in a form suitable for audit, and must supply the Department with any further information which it requires. He must notify the Department promptly of any changes in his technical staff, his manufacturing or storage premises, and his process and conditions of manufacture or storage. A licensed dealer must provide such protection against loss or theft of narcotics in his possession as may be required by the Minister and must report to the Minister any loss or theft of a narcotic within ten days of its discovery.

*Pharmacists.*¹² Pharmacists must keep full records of the drugs received by them, showing names, quantities, dates of receipt and particulars of the person from whom they are received. A pharmacist must not dispense any narcotic unless he has first received an order or prescription from a practitioner. The general rule with respect to narcotics is that a prescription must be in written form and signed by the practitioner, but there is a category of narcotics that may be dispensed on oral prescription. (Certain preparations containing codeine phosphate may be dispensed without prescription.) When the prescription is in writing the pharmacist must verify the signature of the practitioner if it is not known to him. In the case of an oral prescription the pharmacist must take reasonable precautions to satisfy himself that the person giving the prescription is a practitioner. A pharmacist may not refill a prescription for a narcotic. Pharmacists must keep a record of the particulars of all written and oral prescriptions filled by them and must send this information to the Department at regular intervals. The records of a pharmacist's transactions involving narcotic drugs must be kept for a period of at least two years and be available for inspection and audit at any time by inspectors of the Department. Like licensed dealers, pharmacists must take certain precautions against loss or theft of narcotics and must report any such loss or theft within ten days of its discovery.

Practitioners. A practitioner must not prescribe, administer, give, sell or furnish a narcotic to a person or animal unless the person or animal is a patient under his professional treatment and the narcotic is required for the condition for which the person or animal is receiving treatment.¹³ In any prosecution for violation of this regulation the burden of proving these facts is on the practitioner. (In practice, there have been few prosecutions of practitioners in recent years; the Department generally takes the administrative action referred to below.) Practitioners must keep records in certain cases of drugs which they furnish for self-administration. They must also furnish such information as the Department may from time to time require concerning narcotic drugs in their possession or prescribed or administered

by them. Such records as they are required to keep must be retained by them for a period of at least two years and be available for inspection at any time by inspectors of the Department. Like licensed dealers and pharmacists, practitioners must take adequate steps to protect narcotics in their possession from loss or theft and must report any such loss or theft to the Department within ten days of its discovery.

*Hospitals.*¹⁴ Hospitals must keep written records of narcotics received and dispensed by them. Such records must be kept for a period of at least two years and be available for inspection by inspectors of the Department. Hospitals must take precautions against loss or theft of narcotics and report any such loss or theft to the Department within ten days of its discovery. Narcotics may only be dispensed or administered in a hospital to a person who is under treatment as an inpatient or outpatient and upon the prescription or authorization of a practitioner.

Special regulations governing methadone. These regulations are described in Appendix G.1 *Methadone Control Program of the Government of Canada*, and are the subject of commentary in Section IX. Briefly, they require that a physician must be specially authorized by the Minister to be able to prescribe or administer methadone. Licensed dealers, pharmacists and hospitals can only act with respect to methadone on the prescription or order of a physician who has been so authorized.

Administrative action in the case of violation of the regulations by practitioners or pharmacists. The Parliament of Canada can control the availability of drugs (and thus the capacity of physicians and others to make use of them) through the exercise of its criminal law power, and to some extent, its power to regulate trade and commerce, but the general power to regulate the practice of medicine and pharmacy and to establish and regulate hospitals is provincial. Such regulation is carried out through the governing bodies of these professions in the provinces. Thus a full control over physicians and pharmacists with respect to the distribution of drugs requires provincial cooperation as well as federal action. Where the federal administrative authorities are of the opinion that practitioners or pharmacists are guilty of abuse in the distribution, prescription or administration of narcotics they may, after investigation and consultation with the provincial licensing authorities, impose conditions upon their right to purchase drugs.¹⁵ The provincial licensing authority may take such action as it sees fit consequent upon the information furnished to it by the federal authorities.

*Authorizations for purposes of research and drug identification and analysis.*¹⁶ The Department may authorize the purchase, possession and administration of narcotics for scientific purposes. Departmental procedures and policy with respect to approval of research proposals are discussed in Section XII *Research and Information*. The essential point to be noted here is that scientific research with respect to narcotics is controlled by ministerial discretion through control over the availability of the drugs required for

research. The Department may also authorize the possession of narcotics for purposes of drug identification or analysis. The Regulations permit any person to deliver a narcotic to a practitioner of medicine or to his agent for delivery to the Minister or his agent or to an analytic facility approved by him. (Formerly this right was restricted to a patient who was being treated for drug effects by the doctor to whom the drug was delivered.) We shall comment on facilities for drug identification and analysis in Section XII.

*Summary of persons authorized to be in possession of narcotics.*¹⁷ The following persons are authorized to be in possession of narcotics when they have obtained them in accordance with the Regulations: licensed dealers, pharmacists, practitioners, hospitals, persons entitled to be in possession for purposes of research or drug identification or analysis, inspectors, police and members of the technical or scientific staff of a federal or provincial government department or a university, when such possession is required for their employment, and persons who are in possession for their own use, when they have obtained the narcotics from a practitioner or pharmacist.

*"Prescription shopping".*¹⁸ It is forbidden for a person who has obtained a prescription or a narcotic to seek or receive another prescription or a narcotic from a different practitioner without disclosing to that practitioner particulars of every prescription or narcotic that he has obtained within the previous thirty days. This regulation is directed against the practice that is referred to as "prescription shopping", or "double doctoring".

*Penalty for violation of Narcotic Control Regulations.*¹⁹ Any violation of the *Narcotic Control Regulations* is punishable on summary conviction by a fine not exceeding \$500 or by imprisonment for a term not exceeding six months or by both fine and imprisonment.

The prohibitions in the Narcotic Control Act. In fulfilment of the obligation under the *Single Convention* to make certain unauthorized acts of production and distribution of narcotics punishable offences, the *Narcotic Control Act* prohibits unauthorized importing and exporting, trafficking, possession for the purpose of trafficking, and cultivation of the opium poppy. Unauthorized importing and exporting are indictable offences punishable by a maximum of life imprisonment and a minimum of seven years.²⁰ Trafficking and possession for the purpose of trafficking are indictable offences punishable by a maximum of life imprisonment.²¹ Unauthorized cultivation of opium poppy is an indictable offence punishable by a maximum of imprisonment for seven years.²² There is also liability to fine in any amount for all these offences.²³ Reference is made to Appendix F.3 for further details of the law with respect to these offences.

THE FOOD AND DRUGS ACT

The controls on availability called for by the *Convention on Psychotropic Substances*, 1971, are generally provided for in Canada by the *Food and Drugs Act*²⁴ and the *Food and Drug Regulations*.

With certain exceptions, the strong hallucinogens in Schedule I of the Convention are controlled under the designation of "restricted drugs" by the provisions of Part IV of the *Food and Drugs Act* and Part J of the *Food and Drug Regulations*. Schedule H (formerly Schedule J) of the Act lists the following restricted drugs: LSD, DET, DMT, MDA, MMDA, LBJ, harmaline, harmalol, STP (DOM) and various forms of dimethoxyamphetamine.

There are, however, important differences in the specific drugs covered by the international and Canadian drug schedules. THC and its isomers are included in Schedule I of the *Convention on Psychotropic Substances*, 1971, while cannabis and cannabis resin are governed by the *Single Convention on Narcotic Drugs*, 1961. All three forms of cannabis are presently regulated in Canada by the *Narcotic Control Act*. The drugs which Schedule I of the *Convention on Psychotropic Substances* and Schedule H of the *Food and Drugs Act* have in common are LSD, DET, DMT, and STP (DOM). A notable difference is that mescaline is in Schedule F of the *Food and Drug Regulations*, to which a less strict control regime applies than to the restricted drugs in Schedule H, and psilocybin is not included in any Canadian schedules.

Under the Act and Regulations the restricted drugs are not legally available for general medical use. The Regulations make provision, however, for the distribution and possession of these drugs for purposes of research in the form of clinical or laboratory investigation. There is also the same provision as in the case of narcotic drugs for possession of restricted drugs for purposes of identification and analysis.²⁵

Essentially the same controls are applied to the restricted drugs to permit their use for the above purposes as are applied to the drugs governed by the *Narcotic Control Act*. Dealers may be licensed for the manufacture and distribution of restricted drugs for such purposes.²⁶ (At the present time, the only licensed dealer is within the government.) Licensed dealers may, with the permission of the Minister, sell restricted drugs to research institutions and hospitals for purposes of clinical and experimental investigation. Such institutions must keep records available for inspection of all restricted drugs received and used by them. Licensed dealers must keep detailed records of all restricted drugs handled by them. These records must be kept for a period of at least two years in a form suitable for auditing. A licensed dealer must permit inspection of his premises, processes and conditions of manufacture and storage, the qualifications of his technical staff, and his records. He must also supply any further information and permit any further inspection or audit that the Minister may require. He must take the same precautions against loss or theft as licensed dealers in narcotics.

Under Part IV of the *Food and Drugs Act*²⁷ trafficking and possession for the purpose of trafficking in restricted drugs are criminal offences punishable as follows:

Upon summary conviction, by imprisonment for a term not exceeding eighteen months; and

Upon indictment, by a term of imprisonment not exceeding ten years.

Trafficking under the *Food and Drugs Act* includes unauthorized importing or exporting. Reference is made to Appendix F.3 for further details on the law concerning these offences.

Some of the drugs in Schedules II, III and IV of the *Convention on Psychotropic Substances* are regulated as “controlled drugs” under Part III and Schedule G of the *Food and Drugs Act*, and some are regulated under the less strict controls of Schedule F of the *Food and Drug Regulations*. Schedule G of the Act, which includes the barbiturates as well as the amphetamines, lists the following drugs: amphetamine, barbituric acid and its derivatives, benzphetamine, methamphetamine, pentazocine, phendimetrazine, and phenmetrazine, and their respective salts.* Thus it includes Preludin® (phenmetrazine) but not Ritalin® (methylphenidate), which is included in Schedule II of the Convention but in Schedule F of the *Food and Drug Regulations*.

The short-acting barbiturates in Schedule III of the Convention—amobarbital, cyclobarbital, pentobarbital, and secobarbital—are included in the general reference to barbituric acid derivatives in Schedule G of the *Food and Drugs Act*. The hypnotic glutethimide, which is also in Schedule III of the Convention, is in Schedule F of the *Food and Drug Regulations*.

A few of the drugs in Schedule IV of the Convention—barbital, phenobarbital, and methylphenobarbital—are covered as “controlled drugs” by Part III of the *Food and Drugs Act*. The remainder are for the most part in Schedule F of the *Food and Drug Regulations*. The hypnotic chloral hydrate and the minor tranquilizers Librium® (chlordiazepoxide) and Valium® (diazepam), which were originally included in Schedule IV of the draft convention but later deleted, are all covered by Schedule F of the Regulations.

Controlled drugs under Part III of the Act are subject to essentially the same controls over their availability for medical and scientific purposes as those which govern the narcotics under the *Narcotic Control Regulations*. These include a licence for manufacturers and distributors, import and export permits, the requirement of prescription, record-keeping, safeguards against loss or theft, reporting, inspection and audit.²⁸ The main differences are that as a general rule a prescription for narcotics must be in writing, whereas it may be oral for controlled drugs, and a pharmacist may not refill a prescription for a narcotic, whereas he may refill one for a controlled drug if the physician has given explicit instructions for this purpose in the prescription.

Trafficking and possession for the purpose of trafficking in controlled drugs are punishable on summary conviction by imprisonment for a term not exceeding 18 months and upon indictment by imprisonment for a term not exceeding ten years.²⁹ Reference is made to Appendix F.3 for the law concerning these offences.

* See footnote concerning methaqualone on page 102.

Special controls on the medical use of the amphetamines and amphetamine-like drugs. Under the controlled drug regulations the physician has until recently been the judge of the medical treatment for which these drugs are appropriate. The sole requirement has been that they be prescribed or administered for *bona fide* medical treatment and not for non-medical purposes. Recently, however, the Federal Government has gone further and has limited the medical uses for which the amphetamines and amphetamine-like drugs listed in Schedule G may be prescribed or administered.³⁰ Amphetamine, benzphetamine, methamphetamine, phenmetrazine, and phendimetrazine and their respective salts are classified as "designated drugs", and their use is confined to treatment of the following conditions in humans: narcolepsy, hyperkinetic disorders in children, mental retardation (minimal brain dysfunction), epilepsy, parkinsonism and hypotensive states associated with anaesthesia. Their use in the treatment of animals is to be confined to the condition of depression of cardiac and respiratory centres. Full particulars of the use of these drugs in treatment, including name, address, age and sex of the patient, are to be furnished to the Minister of National Health and Welfare through the Bureau of Dangerous Drugs. If the treatment is to last more than thirty days practitioners are required to consult another practitioner for confirmation of the diagnosis of the patient's illness. The Minister may exceptionally grant authorization for the use of these drugs for other purposes if he considers such use to be in the public interest or the interest of science. These restrictions on the medical use of amphetamines and certain amphetamine-like drugs were developed by the government after consultation with advisory panels of medical experts.

As in the case of narcotics and restricted drugs, provision exists to permit the possession of controlled drugs for purposes of identification or analysis.³¹

Schedule F drugs. The drugs covered by Schedule F of the *Food and Drug Regulations*³² are required for medical purposes. They are subject to the same general conditions* concerning quality, safety and accurate labelling as other drugs, and they may only be sold to a member of the public upon prescription. They may be sold without prescription to a drug manufacturer, a practitioner, a wholesale druggist, a registered pharmacist, a certified hospital, a federal or provincial government department, or any person authorized by the Director of the Health Protection Branch of the Department of National Health and Welfare.

The Regulations do not require a licence or permit for the manufacture, distribution, importation or exportation of a Schedule F drug. The only persons, however, who are permitted to import such a drug are practitioners, drug manufacturers, wholesale druggists, registered pharmacists and residents of a foreign country while visitors in Canada.

* All new drugs must comply with the Department's requirements of safety and efficacy before being put on the market.

The Regulations do not require the same record-keeping and accounting for inventories as in the case of narcotics, restricted drugs and controlled drugs although to some extent manufacturers and importers must keep records of distribution to facilitate recall of drugs. There is, however, no reporting of inventories as in the case of narcotics, controlled drugs and restricted drugs. Pharmacists must retain written prescriptions for a period of at least two years, and where the prescription is oral, the pharmacist must immediately reduce it to writing and keep the written record for a period of at least two years. Pharmacists are not required, however, to make regular reports of their transactions to the Department, as in the case of narcotics and controlled drugs. A prescription for a Schedule F drug must not be refilled unless the practitioner so directs, and it must not be refilled more than the number of times prescribed by the practitioner. A written record must be made on the original prescription of the date of refill, the quantity of drug dispensed, and the name of the person who has refilled the prescription.

The sale of Schedule F drugs to a member of the public without prescription is a punishable offence, but it does not carry as severe penalties as trafficking or possession for the purpose of trafficking in narcotics, controlled drugs or restricted drugs. It is punishable as follows:

On summary conviction for a first offence by a fine not exceeding five hundred dollars or by imprisonment for a term not exceeding three months, or both, and for a subsequent offence by a fine not exceeding one thousand dollars or by imprisonment for a term not exceeding six months, or both; and

On indictment, by a fine not exceeding five thousand dollars or by imprisonment for a term not exceeding three years, or both.³³

To "sell" is defined by the *Food and Drugs Act* as including "sell, offer for sale, expose for sale, have in possession for sale, and distribute".³⁴ As in the case of controlled drugs in Schedule G of the Act, it is not an offence to be in unauthorized possession of Schedule F drugs for personal use.

Apart from the difference in the severity of the maximum penalties for illegal distribution, the chief differences in the regulations governing Schedules F and G is that manufacturers and dealers of Schedule F drugs do not require to be licensed, and there is no monitoring of their inventories, and pharmacists are not required to make regular reports of prescriptions to the Department.

The *Convention on Psychotropic Substances*, 1971, calls for more strict controls in some respects and less strict in others than the controls which presently apply to drugs on Schedule F of the *Food and Drug Regulations*. All but one of the drugs in Schedule III of the Convention—glutethimide—are presently regulated in Canada as controlled drugs under Schedule G of the *Food and Drugs Act*. The regulations applicable to the controlled drugs fully meet the requirements of the Convention with respect to drugs on Schedule III, with the possible exception of the special requirements concerning export. Glutethimide and the drugs in Schedule IV of the Convention

which are presently in Schedule F of the *Food and Drug Regulations* are subject to stricter controls concerning record-keeping by manufacturers, importers and exporters than those which apply under Schedule F but to less strict controls concerning record-keeping by pharmacists. The Convention requires that records be kept by manufacturers, importers and exporters of drugs manufactured, imported and exported (although not, as in the case of drugs in Schedules II and III, of disposals as well as acquisitions), whereas no such records are presently required for these drugs by the Canadian regulations. On the other hand, the Canadian regulations require pharmacists to keep records of prescriptions for the drugs in Schedule IV of the Convention, whereas there is no such requirement under the Convention. In the case of drugs in Schedules III and IV, a party to the Convention is also required to make annual reports to the International Narcotics Control Board of the quantities of such drugs manufactured, imported and exported.

Over-the-counter drugs. Over-the-counter drugs are those drugs used for medical purposes which are not on any schedule of the *Food and Drugs Act*. They are subject to the general regulations concerning manufacturing, packaging, labelling, advertising and sale, but they do not require prescription, and dealers in them do not have to be licensed. Nor is there any requirement of record-keeping and reporting. A special category of the over-the-counter drugs are the proprietary or patent medicines—those which are not found in any recognized pharmacopoeia or formulary, or upon the label of which is not printed in a conspicuous manner the true formula or list of medical ingredients contained in them (in other words, those with a secret formula). They are governed by the *Proprietary or Patent Medicine Act*.³⁵ Basically, this Act is concerned with prohibiting the use of certain drugs in such medicines and requiring clear notice of the use of other drugs which are listed in the Schedule of the Act. Manufacturers of such secret formula medicines, and their agents, must obtain a certificate of registration from the Minister of National Health and Welfare. To obtain such a certificate they must furnish the Minister with certain information concerning the medicines which they propose to sell. Manufacturers must apply for annual licences to sell their medicines. It is forbidden to manufacture or distribute a proprietary or patent medicine containing opium or its derivatives for internal use. It is also forbidden to manufacture or distribute such a medicine if it contains cocaine or if it contains alcohol in excess of the amount required as a solvent or preservative, or which is not sufficiently medicated to make it unfit for use as a beverage. The quantity used of other drugs listed in the Schedule of the Act must not exceed that approved by an Advisory Board appointed by the Minister of National Health and Welfare. The Board also prescribes the maximum single and daily doses of any product containing a drug on the Schedule. The Act provides for the kind of information that must be shown on labels and the kinds of advertising or claims of efficacy that are forbidden.

Prohibited drugs. The *Food and Drugs Act*³⁶ prohibits the sale for any purpose of the drugs listed in Schedule F (formerly H) of the Act (as distinct

from Schedule F of the Regulations). At the present time the only drug listed in this schedule is thalidomide. (LSD was once in this schedule.) The manufacture, importation and distribution of other drugs, such as heroin (and cannabis, for all purposes other than research) are effectively prohibited by the administrative decision not to grant a licence or permit for such purpose.

THE CRITERIA GOVERNING THE SCHEDULING OF DRUGS FOR CONTROL PURPOSES

There has been no attempt to formulate and express clear criteria for the scheduling decisions which must be taken by the administrative authorities. Basically, however, such decisions would appear to be guided by consideration of a drug's necessity or utility for medical purposes, its potential for producing harm, and its actual and potential "abuse" for non-medical purposes. The authorities tend to base their decisions on what they judge to be the actual extent of the problem presented by each drug rather than on the application of a set of general criteria. On the whole, the Canadian approach tends to be a pragmatic one, although as indicated above, there is a fairly comprehensive framework of controls into which drugs can be placed, according to the particular problems which they present. (In addition to the schedules of the *Food and Drugs Act* which have been referred to, there are other schedules which are not of importance for our purposes.)

The kinds of issue confronting the authorities are reflected in the decision to place Preludin® on Schedule G of the *Food and Drugs Act* as a "controlled drug", but to leave Ritalin® and certain other amphetamine-like compounds as prescription drugs subject to less strict controls on Schedule F of the *Food and Drug Regulations*. A further example is the growing problem presented by the non-medical use of PCP (phencyclidine), which, at the time of preparation of this report, was still on Schedule F of the Regulations, although the possible necessity of re-scheduling it was being given careful consideration by the Department.*

ADMINISTRATION OF THE CANADIAN CONTROLS ON AVAILABILITY FOR MEDICAL AND SCIENTIFIC PURPOSES

The Bureau of Dangerous Drugs of the Health Protection Branch of the Department of National Health and Welfare is responsible for administering the controls on the availability for medical or scientific purposes of narcotics, controlled drugs and restricted drugs. The Bureau is headed by a Director who reports to the Director General, Drugs Directorate of the Health Protection Branch.

Licensed dealers and pharmacists make regular reports to the Bureau with respect to their transactions in narcotics and controlled drugs. Licensed

* PCP was transferred in June 1973 from Schedule F of the *Food and Drug Regulations* to the Schedule of the *Narcotic Control Act*.

dealers report monthly and pharmacists report every two months. Practitioners and hospitals also report their administration of methadone. In addition, the records and inventory of all those who are required to keep records by the *Narcotic Control Regulations* and the *Food and Drug Regulations* are subject to unannounced inspection and audit. The Bureau of Dangerous Drugs has a force of about thirty-five inspectors for such purposes. (This is in addition to the large force of inspectors in the Department for other purposes under the *Food and Drugs Act*.) The policy is to inspect all outlets at least once a year, although it is difficult to meet this objective. There are about 200 licensed dealers in narcotics, about 250 licensed dealers in controlled drugs and about 4700 pharmacies. An increasing amount of the time of inspectors is also taken up assisting the police in the investigation and preparation of cases of forged prescriptions, "double doctoring" and theft.

Prescriptions are monitored in the Bureau by a special staff divided into working groups of four. The Bureau receives notice of over three million prescriptions a year. The monitoring system is not automated, and although the staff have developed considerable skill and judgment in detecting abuses, the system has serious limitations. When the "work sheets" compiled to show the prescription records of individual patients are filed away (or "passed along", in the words of the Bureau) they are for all practical purposes irretrievable. Consideration is presently being given to the possible automation of the system.

Surveillance of distributors of drugs on Schedule F of the *Food and Drug Regulations*, including pharmacies, to make sure that they are complying with the Regulations is carried out by another branch of the Department of National Health and Welfare. For example, inspectors appear from time to time as members of the public to make sure that pharmacists are not selling Schedule F drugs without prescription. In cases of first offence there is usually a report to the provincial regulatory body. In cases of second offence there is a prosecution.

OTHER LEGAL CONTROLS ON AVAILABILITY

For the details of federal and provincial controls on the availability of alcohol and tobacco the reader is referred to Appendices B.6 and B.9. (There is omission, in Appendix B.6, of reference to the *Canada Temperance Act*, a federal statute which provides for prohibition of sale of alcohol in any municipality in which it is approved by referendum. For the constitutional basis of this statute see Appendix F.1 *The Constitutional Framework*.)

Volatile solvents are subject to certain federal regulations requiring warning of danger, and in one case to provincial legislation prohibiting their distribution (and use) for purposes of intoxication (see Appendix B.8).

There are miscellaneous provisions in provincial laws governing the availability of drugs for medical purposes. Provincial pharmacy acts, for

example, stipulate the drugs which may be distributed only by pharmacists. They also generally stipulate the drugs which may be sold only on prescription, although this raises a possible question of conflict with the federal legislation. In case of conflict between federal and provincial provisions on this point the federal provisions will prevail (see Appendix F.1 *The Constitutional Framework*).

The regulation of advertising is discussed in Section XIV *The Mass Media*.

LAW ENFORCEMENT AGAINST ILLICIT PRODUCTION AND TRAFFICKING

INTERNATIONAL COOPERATION

The parties to the international conventions are generally committed to cooperate with one another and with the international drug control agencies to suppress the illicit traffic in drugs. In particular, the conventions contain provisions designed to assure that drug offenders will be subject to extradition. These provisions have been strengthened by the amendments to the *Single Convention* adopted in March 1972. There is increasing international cooperation between law enforcement and customs officials in the fight against trafficking. INTERPOL (The International Criminal Police Organization) plays an important role in this police cooperation. It is an intelligence and communications centre engaged in the analysis and distribution of information which is sent to it by member police forces throughout the world. The United States Bureau of Narcotics and Dangerous Drugs maintains many agents abroad who work with the authorities of other countries. There is particularly close cooperation between the law enforcement authorities of Canada and the United States.

In addition to law enforcement, the international control agencies have recognized the necessity to encourage economic and social development that will reduce the reliance on the illicit production of drugs in many underdeveloped areas of the world. This and other aspects of a more comprehensive approach to the international drug problem are reflected in the development of a Plan for Concerted Action, involving a great variety of research and developmental projects, and the establishment of a United Nations Fund for Drug Abuse Control to assist with the financing of these initiatives.

ENFORCEMENT IN CANADA

*The R.C.M. Police.*³⁷ The R.C.M. Police have attempted in recent years to free themselves for concentration on trafficking by encouraging local police forces to assume a greater responsibility for other aspects of drug law enforcement. The primary responsibility for enforcing the law against simple possession, particularly in the "soft drug" field, has been shifted to local

police forces. The latter do not have to rely, as they formerly did, on the R.C.M. Police for preparation and conduct of these cases. This development has made the resources of the R.C.M. Police more adequate for enforcement against trafficking. The number of personnel in the R.C.M. Police drug squad (in addition to the personnel in general enforcement) has increased in recent years as follows: 1969/70 – 106; 1970/71 – 160; 1971/72 – 196; 1972/73 – 311.³⁸ Although the R.C.M. Police could always use more personnel in law enforcement against trafficking, there is no suggestion at the present time that the Force is seriously undermanned for this task.

Customs. In Canada the Customs service does not perform an independent investigational function to the same extent as in the United States. The R.C.M. Police train customs officials in the drug area. They keep them up to date on known smuggling techniques and on suspected shipments of drugs coming into the country. Under the *Customs Act* officers have the power of personal search if they have reasonable and probable grounds for believing that an offence has been committed. There must be good advance intelligence to permit the customs officer to exercise this power with discrimination. It would not be practicable to subject all passengers to the inconvenience of personal search.

Convictions and seizures involving narcotics. The statistics with respect to convictions in recent years for trafficking offences and seizures involving drugs other than cannabis under the *Narcotic Control Act* reflect a fairly constant or stable level of law enforcement until 1972, when there is a very marked increase. This is a purely quantitative impression, since it is virtually impossible to determine the strategic impact on availability of particular convictions and seizures. There is also a considerable time interval between arrest and conviction. Judging from the number of convictions, there was an apparent decline in law enforcement effectiveness in 1971. The total number of convictions for the offences of trafficking and possession for the purpose of trafficking in drugs other than cannabis under the *Narcotic Control Act* are as follows: 1970 – 204; 1971 – 158, and 1972 – 322.

In recent years seizures of heroin recorded by the R.C.M. Police (and these represent virtually the total amount of such seizures in the country) were as follows: fiscal year 1969/70 – 37.9 lbs.; 1970/71 – 58.4 lbs.; 1971/72 – 195.1 lbs.³⁹ Officers of the Force state that this increase in the amount of heroin seized is in part the result of closer cooperation between Canada, the United States and France. Such cooperation has also resulted in the arrest of more high-level heroin distributors than in the past. Some sense of the relative size of the total amount seized may be gathered from the R.C.M. Police estimate that the annual requirement of heroin for the number of heroin-dependent persons in the country is 76 kilos, or approximately 167 lbs. At the same time, this quantity is very small in relation to the total amount available for supply of the North American market.

Surprisingly enough, there have been very few convictions in recent years for the unauthorized importing or exporting of narcotics. Most of the convictions for importing have involved cannabis. The number of convictions for importing or exporting narcotics (all of which, with only one exception, involved heroin) from 1969 to 1972 is as follows: 1969 – 4; 1970 – 2; 1971 – 3; 1972 – 2. In the same years the convictions for importing or exporting cannabis (marijuana and hashish) were as follows: 1969 – 6; 1970 – 26; 1971 – 22; 1972 – 33.

Explanations given for the comparatively few convictions for the importing of narcotics are that the requirements of the illicit market do not necessitate very many importations, that importation is very difficult to detect, and that the police often prefer to permit the courier to pass through customs in an attempt to apprehend the principals involved in the local distribution system. Such cases are sometimes dealt with on the basis of conspiracy.

Conspiracy to commit an indictable offence under the *Narcotic Control Act* (or the *Food and Drugs Act*) is an indictable offence under the *Criminal Code*⁴⁰ and carries the same penalties as the offence under the Act. Conspiracy is the chief means of convicting leading members of a trafficking operation. It is virtually impossible to apprehend leading traffickers in the act of importation or trafficking since they are usually careful to have no contact with the drug, but on a charge of conspiracy it is sufficient to prove participation in an unlawful agreement even if there was not participation in the actual offence of importing or trafficking. At this level of distribution conspiracy is generally a difficult case to make, often requiring a considerable expenditure of time and money. In other cases, it would appear to be a relatively easy way to proceed. A high proportion of the conspiracy cases in recent years have concerned cannabis, many of them relatively minor cases of trafficking.

The usual procedure in conspiracy cases is for the prosecution to lay charges under the *Narcotic Control Act* (or the *Food and Drugs Act*) as well. If the Crown succeeds on the conspiracy charge it usually withdraws the other charges. If it fails on the conspiracy charge it may proceed on the other charges, although it does not as a general rule do so.

To break up a local distribution “syndicate” or organization by conspiracy it is generally necessary to establish an unlawful agreement between the “top men” who direct it, the “back-end man”, who takes possession of the drug supply when it is brought into the city, packages it in appropriate units and leaves it in places to be picked up by the middlemen, and the “front-end man”, who is informed of these places and makes the contact with the middlemen, exchanging information of location for the price of sale. Generally, the top men have no contact with the drug supply nor with middlemen, but sometimes they have to act as the front-end men, and in such cases they become more vulnerable to detection and apprehension. Every effort is made to preserve the anonymity of the back-end man and to keep him above suspicion. For this reason he is often a person with a respectable

position and without a criminal record. Often the back-end man will be kept out of contact with the front-end man. If the top men are careful to act only through agents in arranging for shipment of the drugs from the point of importation and in other contacts and not to act as front-end men, and the back-end man is kept out of contact with the front-end man or with middlemen, it is very difficult to establish a conspiracy that can break up the organization.

The tables in Appendix E *Conviction Statistics for Drug Offences* indicate the relative severity with which the law has been applied in trafficking cases involving heroin. (See Tables E.16 to E.21 inclusive.) In 1970 out of a total of 180 convictions for trafficking and possession for the purpose of trafficking, 173 were disposed of by imprisonment, and in 1971 the proportion was 114 out of 121. In 1972 the proportion of convictions disposed of by imprisonment was essentially similar. The majority of the sentences—over 60 per cent—are for periods between one and six years.

The range in sentencing for trafficking offences involving the opiate narcotics undoubtedly reflects the fact that a large proportion of the offenders are opiate-dependent persons on the lower levels of the distribution system. There is probably an understandable reluctance to apply the same severity to the opiate-dependent person who engages in a certain amount of trafficking to obtain the money to support his habit as seems appropriate for the non-addict trafficker who is motivated entirely by profit.

A study of the background of 329 inmates of federal penitentiaries classified as "drug addicts" as of August 30, 1972, shows that a high proportion of them had been convicted of a trafficking offence. There had been a total of 348 convictions for trafficking offences among such drug-dependent offenders, and trafficking offences made up about 44% of the total number of convictions which they had received under the *Narcotic Control Act*.⁴¹ There is every reason to believe that law enforcement against trafficking makes a particularly heavy impact against the drug-dependent trafficker.

The actual severity of sentences in practice depends on the policy with respect to parole. The proportion of a sentence which must be served, as a general rule, before an offender can be eligible for parole is indicated in Appendix K *Parole of Heroin Dependents in Canada*. For the majority of the sentences, this period would range from about three months to two years. In the case of longer sentences, a "Study on Drug Traffickers" in federal penitentiaries indicated the following periods served before parole:

On sentences between 15 and 20 years—one served between two and three years; one served between three and four years; two served between four and five years; and one served between five and six years;

On sentences between 10 and 15 years—three served between two and three years; four served between three and four years; and five served between four and five years;

On sentences between six and ten years—three served between one and one and a half years; eighteen served between two and three years; and two served between three and four years;

On sentences between five and six years—three served between six and nine months; one served between one and one and a half years; eleven served between one and a half and two years; six served between two and three years; and two served between three and four years.⁴²

Some public officials have called for a stricter policy with respect to the parole of drug traffickers.

Restricted drugs. It is extremely difficult for the police to make an effective impact upon the illicit supply of the strong hallucinogens. The clandestine laboratories in which they are manufactured and the substances themselves are difficult to detect. LSD is odourless, colourless and tasteless, and because of these properties, and its great potency, it can be smuggled in a variety of inconspicuous guises. Most of it is sold, however, in tablet form. (See Appendix B *Legal and Illegal Sources and Distribution of Drugs.*) Important seizures of laboratories⁴³ and quantities of drugs are made from time to time, but the underground laboratories are able to keep up with demand. Moreover, there does not appear to be any effective way of preventing the underground laboratories from having access to the materials from which LSD is manufactured.

The category of restricted drugs under the *Food and Drugs Act* was not created until August 1969. Since then, convictions for the offences of trafficking and possession for the purpose of trafficking in restricted drugs appear to have risen to a peak in 1971 and declined significantly in 1972, as indicated by the following figures: 1970 – 634; 1971 – 670; 1972 – 493. (See Appendix E, Tables E.48 to E.50 inclusive.) However, this represents a larger number of convictions for trafficking offences in these years than in the case of the opiate narcotics, cocaine, or the controlled drugs (amphetamines and barbiturates), and it is exceeded only by the number of convictions for trafficking offences involving cannabis. The comparative figures in the four categories are as follows:

<i>Drug Category</i>	<i>1970</i>	<i>1971</i>	<i>1972</i>
Narcotics	203	158	322
Cannabis	802	1009	910
Controlled	112	157	294
Restricted	634	670	493

In 1971, almost 90 per cent of the convictions for trafficking offences in restricted drugs involved LSD, and the balance involved MDA. In 1972 the proportion for LSD dropped to about 67 per cent and the proportion for MDA rose to over 30 per cent. In the case of LSD, about 55 per cent

of the persons convicted were under 21 years of age. In the case of MDA, the proportion under 21 years of age was 41 per cent.

In 1972, about 29 per cent of the cases involving trafficking and possession for the purpose of trafficking in LSD were disposed of by fine, probation or suspended sentence, and absolute or conditional discharge. About 88 per cent of the sentences to imprisonment were for periods under two years, and all but one of them were under five years. (See Tables E.62 and E.65.)

Controlled drugs. It is impossible to estimate the extent of diversion of controlled drugs from legal sources to the illicit market. It is known, however, that virtually all of the supply for the intravenous use of 'speed' comes from illicit manufacture. 'Speed' can be quite easily and cheaply manufactured in clandestine laboratories which are difficult to discover. The law enforcement task of suppressing the illicit market in 'speed' is therefore a particularly difficult one. It is also difficult to detect the apparently large quantities of amphetamine and amphetamine-like drugs for oral consumption which are diverted to the illicit market. For details on these matters the reader is referred to Appendix B *Legal and Illegal Sources and Distribution of Drugs*.

The convictions for trafficking and possession for the purpose of trafficking in amphetamines and amphetamine-like drugs have increased in recent years as follows: 1970 – 77; 1971 – 130; 1972 – 277. (See Tables E.39 to E.41 inclusive.) The overwhelming majority of these cases have involved methamphetamine or 'speed', as follows: 1970 – 64; 1971 – 123; 1972 – 248. There have been few convictions involving other amphetamines, and the total number has actually declined, as follows: 1970 – 13; 1971 – 5; 1972 – 7. In 1972 there were 22 convictions for trafficking offences involving Preludin® (phenmetrazine).

Convictions for trafficking offences involving barbiturates in these years have been much fewer than in the case of the amphetamines, and have been declining, as indicated by the following figures: 1970 – 36; 1971 – 27; 1972 – 17.

Most of the convictions for trafficking offences involving methamphetamine have occurred in Ontario, as indicated by the following percentages: 1970 – 68.7%; 1971 – 82.9%; 1972 – 82.2%. The other convictions were distributed fairly evenly across the country. These figures reinforce the impression that 'speed' is primarily, although by no means exclusively, an Ontario problem. The concentration in Ontario of convictions involving 'speed' is proportionately greater than the concentration of heroin convictions in British Columbia.

The relatively few convictions for trafficking offences involving other amphetamines (presumably for oral use) are distributed across the country without any particular concentration.

The pattern of sentencing for trafficking offences involving controlled drugs (both amphetamines and barbiturates) is, as one would expect, less

severe than for trafficking offences involving heroin. (See Table E.44.) A higher proportion of the sentences to imprisonment for the controlled drugs are under two years. In 1972, 228 out of 257, or 80.9 per cent of the cases of imprisonment for trafficking offences involving controlled drugs were in this range, whereas only 55 out of 278, or 19.8 per cent of the cases of imprisonment in trafficking offences involving heroin were in the same range. All sentences for controlled drugs were for periods under six years.

CONCLUSIONS AND RECOMMENDATIONS

RELATIVE EFFECTIVENESS OF LAW ENFORCEMENT AGAINST TRAFFICKING

In Section V we commented on the difficulty faced by the law enforcement authorities in attempting to make an effective impact upon the illegal production and distribution of opiate narcotics, in particular heroin. The prospects, as we suggested there, are extremely discouraging. These difficulties are described in detail in Appendix B *Legal and Illegal Sources and Distribution of Drugs*. From time to time massive seizures and arrests may result in shortages of supply but they are of brief duration. In the late 1950s and early 1960s a series of conspiracy cases in North America broke up some leading trafficking organizations and led to street shortages, or "panics", which significantly reduced the number of heroin users. But other leaders stepped in to take the place of those who were arrested, and supply was eventually restored. Trafficking practices became more specialized and sophisticated so as to reduce the danger of detection. Law enforcement against trafficking became more difficult.

It must be conceded, however, that it is impossible to estimate the relative effectiveness of law enforcement against trafficking with any accuracy. If we look at the increase in the illicit use of opiate narcotics in recent years we might be led to conclude that it has been relatively ineffective. But we cannot tell what the extent of use might have been had there been no such enforcement. The total number of convictions and the volume of seizures may suggest something of the level or intensity of law enforcement, but by themselves they do not tell us much. Numbers are not so important as the strategic impact of convictions—that is, the relative importance in the distribution system of the individuals who are apprehended, convicted and sentenced to imprisonment. In the face of overwhelming availability, the highest volume of seizure which police and customs officers could reasonably be expected to attain could at most cause temporary shortage and inconvenience to the distribution system.⁴⁴ Temporary shortages now fall with less severe impact on the using population because of the availability of methadone. Yet a substantial seizure from time to time may at least temporarily prevent the spread of the drug into new areas. It may reasonably be assumed that every large seizure probably prevents or postpones the introduction of some individuals to the use of heroin. Vigorous police action also makes trafficking operations more risky and less efficient.

A truly significant impact on availability could only be made by serious efforts to dry up the supply of the raw material at source. International efforts directed to this end are moving slowly with only slight prospects of success. South East Asia remains a major source of illicit opium more than capable of replacing other sources, such as Turkey, which may be reduced or cut off as a result of international cooperation. United Nation's efforts to remove the basis for illicit cultivation of opium in this and other parts of the world by economic and social measures will probably take another generation to produce appreciable results.

WHETHER CANADIAN LAW IS SUFFICIENTLY SEVERE

Canadian law with respect to trafficking in the narcotics compares in relative severity with American law, federal and state,⁴⁵ and is more severe than that of Great Britain,⁴⁶ Australia⁴⁷ and New Zealand,⁴⁸ as well as that of several countries in Western Europe.⁴⁹

The Canadian law with respect to trafficking in the narcotics reached its present state of severity by a series of changes over the years. The original law against opium in 1908⁵⁰ prescribed a maximum penalty of three years' imprisonment for illegal distribution. This was subsequently reduced, but later increased to seven years.⁵¹ In 1954 the maximum sentence for trafficking offences was increased from seven to 14 years,⁵² and in 1961 to the present life imprisonment.

The only ways in which the Canadian legislation could be made more severe would be the provision of a minimum mandatory sentence for trafficking and possession for the purpose of trafficking, or the provision of the death penalty. At one time in Canada all narcotic offences were punishable by a minimum mandatory sentence,⁵³ but this provision was abandoned. Minimum mandatory sentences, while assuring a certain minimum of severity for serious offences, limit the judicial discretion required to deal appropriately with less serious offences. This has certainly been the case with the minimum mandatory sentence of seven years for importing or exporting, particularly insofar as cannabis is concerned. The Canadian Committee on Corrections recommended the repeal of all provisions for minimum mandatory sentences, except in the case of murder.⁵⁴

A question arises as to whether it would be appropriate to single out certain kinds of trafficking, such as distribution to minors, for a minimum mandatory sentence. American law has applied a special standard of severity to this crime. French law provides a special penalty for facilitating drug use by a minor. Formerly, there was some distinction in Canadian law with respect to distribution to minors. When there was the option to proceed by way of summary conviction or indictment in trafficking cases involving narcotics, the law was amended in 1921 to provide that it was mandatory to proceed by indictment in cases involving distribution to minors.⁵⁵ **In view of the scope of discretion that is left to the courts by a maximum penalty of**

life imprisonment there would appear to be no need to single out distribution to minors for special provision in the legislation.

There are a few countries which provide the death penalty for trafficking in narcotics. During the debate on the *Narcotic Control Act* of 1961 a member of the House of Commons urged that the death penalty be provided in Canadian law, but the suggestion was rejected by the Government.⁵⁶ It was argued that life imprisonment (together with the preventive detention to be provided by Part II of the Act) was a sufficiently severe penalty to convey the seriousness with which the law regarded the offence of trafficking. Particular concern was expressed about making the opiate-dependent person who trafficked to support his habit liable to the death penalty. (Since then Canada has moved in the direction of the abolition of capital punishment by reducing the cases of capital murder to those involving police officers and prison guards.)

In our opinion the Canadian legislation with respect to trafficking in the opiate narcotics would appear to be sufficiently severe to give the law enforcement authorities all the legislative basis they require for effective action. Indeed, judged by the relative severity of the law in most other jurisdictions of the western world, it might even be considered to be too severe. It would appear to be inappropriate, however, in the present climate of justified concern about the increase of opiate use and dependence to consider any reduction in the maximum penalties. There are certainly offences that merit life imprisonment, and the courts should be left with this discretion.

An aspect of the severity of the Canadian law is the offence of possession for the purpose of trafficking, with the burden of proof which it casts upon the accused. (See Appendix F.3.) There has been an increasing reliance upon this offence by the law enforcement authorities in recent years. The number of convictions for this offence, as a proportion of the total number of convictions for offences involving trafficking and possession for the purpose of trafficking, has increased from 1970 to 1972 as follows: heroin—from 19.4 per cent to 40.2 per cent; controlled drugs—from 52.7 per cent to 68.4 per cent; restricted drugs—from 44.3 per cent to 68.8 per cent. **We reaffirm the recommendation in our Cannabis Report⁵⁷ concerning the burden of proof on this offence—that when possession has been proved it should be sufficient for the accused to raise a reasonable doubt as to his intention to traffic. He should not be required to make proof which carries on a preponderance of evidence or a balance of probabilities.**

We see no reason to recommend any change in the maximum penalties for trafficking and possession for the purpose of trafficking in the controlled and the restricted drugs. The maximum penalty of ten years' imprisonment upon indictment is sufficiently severe to mark the seriousness of this offence, and the option to proceed by summary conviction, where the maximum penalty is eighteen months, gives the authorities sufficient flexibility to deal

with less serious cases in an appropriate manner. The pattern of sentences indicates that the operating maximum is between four and six years.

THE EFFECT OF PAROLE

The effect of severe sentences against traffickers can be undermined by the grant of parole. **We recommend that a stricter policy with respect to parole be adopted towards offenders convicted of serious trafficking offences.**

MINOR DISTRIBUTION BETWEEN USERS

In the course of our inquiry the issue has been raised from time to time as to whether the transfer without value by one user to another of a small quantity of a prohibited drug should be punished as trafficking. **In our Cannabis Report we recommended that the giving without exchange of value by one user to another of a quantity of cannabis which could reasonably be consumed on a single occasion be excluded from the definition of trafficking. We do not believe that such an exclusion would be appropriate for trafficking in the narcotics, the controlled drugs or the restricted drugs.** Facilitating the use of these drugs is a more serious act than the transfer of a small quantity of cannabis.

CONTROLS ON THE AVAILABILITY OF DRUGS FOR MEDICAL PURPOSES

Protection Against Loss or Theft

A major objective of the control of availability is to prevent diversion from legitimate sources of supply to illicit purposes. The system of controls on the availability of drugs for medical and scientific purposes is designed to prevent this diversion as much as possible. As indicated above, there are fairly strict controls on the narcotics, the controlled drugs, and the restricted drugs. The controls appear to be adequate in conception; their effectiveness depends, of course, on the care with which they are applied.

Despite the obligation of licensed dealers, pharmacists, practitioners, and hospitals to provide satisfactory protection against loss or theft, there is still a substantial amount of theft which feeds an illicit market. (See Appendix B *Legal and Illegal Sources and Distribution of Drugs*.) The Canadian regulations do not, like the American, go into great detail concerning the kinds of protection or safeguard which must be adopted in the various situations of distribution or custody. With few exceptions it is left to departmental discretion as to what it is reasonable to demand in each case. As a general rule licensed dealers are required to have an alarm system. The regulations specifically require that pharmacists keep all narcotics except oral prescription narcotics in a locked receptacle, drawer or safe. Most pharmacists have a safe in which they keep methadone and other narcotics. Many have only a locked cabinet. Where existing safeguards prove inad-

equate the Bureau of Dangerous Drugs will insist on greater protection. The same security measures cannot be required of small hospitals as of large institutions. In effect, the policy is a reasonably flexible one, which is adjusted in the light of actual experience. The Bureau is satisfied that it is doing what it reasonably can to assure adequate protection against loss or theft. **We do not recommend any specific changes in the existing policy, but merely emphasize again the supreme importance of everyone in the distribution system taking all reasonable care to prevent diversion by loss or theft. We also urge the Bureau to be rigorous in its application and enforcement of the security requirements.** In reconciling the convenience of licensed dealers, pharmacies and others in the distribution system with the public interest in security, the balance must be struck in favour of the public interest. Law enforcement efforts to suppress the illicit traffic can be nullified by failure of this security system.

Controls on Schedule F Drugs

An important issue is whether any or all of the prescription drugs on Schedule F of the *Food and Drug Regulations* should be subject to the same controls as the narcotics and controlled drugs. It will be recalled that the essential differences at the present time are that there is no check on the quantities of Schedule F drugs in the country for medical purposes and no regular reporting of prescriptions. Apart from conditions of quality, safety and sanitary manufacture and storage, no particular approval is required for the manufacture and distribution of Schedule F drugs, and there is no provision for record-keeping, reporting, inspection and audit which would permit the authorities to monitor inventories, sales or medical prescriptions. (Manufacturers and importers of drugs on Schedule F are required to keep certain records of their disposal of drugs to facilitate drug recall, but they are not required to make reports.)

As indicated elsewhere in this report (Appendix B *Legal and Illegal Sources and Distribution of Drugs*) there is evidence of considerable diversion of some of these drugs, such as the sedative-hypnotic methaqualone and, to a lesser extent, the hallucinogen phencyclidine (PCP),* to an illicit market. There are also indications in some areas of significant non-medical use of certain minor tranquilizers, such as diazepam (e.g., Valium®), but it would appear, given the limited data available, that at the present time these latter drugs are obtained primarily through prescription, with various patterns of subsequent distribution and use. **Because of the growing non-medical use of sedative drugs it would be prudent to carefully monitor legitimate supplies and sales of sedative-hypnotics and minor tranquilizers.** As well, with the recent tightening of administrative controls on amphetamine and phenmetrazine (as designated drugs in Schedule G), some increase in non-medical use (and pressure for diversion) of certain amphetamine-like drugs, such as methylphenidate (e.g., Ritalin®), in Schedule F may be expected. However, due

* See footnotes concerning PCP and methaqualone on pages 80 and 102.

to the absence of appropriate record-keeping and reporting provisions in the Regulations, effective detection of possible diversion of Schedule F drugs and monitoring of medical prescription abuses is not presently feasible.

Because of the significant potential for non-medical use of certain of the drugs in Schedule F, we recommend that they be brought (as a class of designated drugs) under administrative controls on availability similar to those which govern the controlled drugs. At a given moment it may not be considered desirable for a number of reasons—in particular, the more severe sanctions against trafficking—to transfer a drug from Schedule F of the Regulations to Schedule G of the Act, but it may be desirable to submit certain drugs which present a growing problem of non-medical drug use, or a significant potential for diversion to an illicit market, to stricter controls, including, in particular, those concerning record-keeping and returns, inspection and audit, and protection against loss or theft. Moreover, as indicated above, if Canada becomes a party to the *Convention on Psychotropic Substances*, 1971, it will be required to impose stricter controls on certain drugs in Schedules III and IV which are now on Schedule F of the *Food and Drug Regulations*.

Limitations on Production and Uses for Medical Purposes

There has been concern in recent years about overproduction of drugs for medical purposes, which is said to lead to pressure on physicians to increase their prescribing and also to diversion to an illicit market for purposes of non-medical use. The issue is whether an attempt should be made to impose limitations on the manufacture and importation of drugs for medical purposes. As we have indicated above, the production of narcotics is regulated by a system of annual estimates which nations are required to adhere to, and which must be approved by the International Narcotics Control Board. No such system of estimates is imposed by the *Convention on Psychotropic Substances*, 1971.

The United States does, however, provide a system of production quotas for drugs in Schedules I and II of the *Controlled Substances Act*. The Director of the United States Bureau of Narcotics and Dangerous Drugs fixes an annual quota for the production of a particular class of drug for legitimate purposes and distributes this quota among individual manufacturers. Under this system, overall production quotas and individual manufacturing quotas have been established for the amphetamines which have greatly reduced the quantity manufactured. (See Appendix B *Legal and Illegal Sources and Distribution of Drugs*.) It is now proposed that the barbiturates be transferred to Schedule II so as to be subject to the quota system.⁵⁸

Apart from the estimate system governing the narcotics, no consideration is being given by the Bureau of Dangerous Drugs in Canada to limiting the total quantities of drugs manufactured and imported for medical purposes. The medical purposes for which amphetamines may be used have recently

been restricted,* but there has been no attempt otherwise to limit the production or importation of these drugs. There are no limits placed on the production of barbiturates, minor tranquilizers and non-barbiturate hypnotics, all of which lend themselves to abuse for non-medical purposes and to diversion to an illicit market.

While there was a decrease in the per capita consumption of licitly manufactured amphetamines of 56 per cent between 1966 and 1971, during this period nearly twice as much amphetamine was manufactured in Canada for medical use as was actually sold to hospitals and retailers. (See Appendix B *Legal and Illegal Sources and Distribution of Drugs*.) There appears to be a heavy accumulation of reserve inventories in order, apparently, to be assured of being able to meet delivery requirements. These large inventories do, however, increase the risk of diversion to an illicit market. While there was about a 25 per cent decrease in the estimated consumption of barbiturates between 1966 and 1972, there is still a very large estimated annual consumption amounting to almost one-half of a billion barbiturate pills or tablets. (See Appendix B *Legal and Illegal Sources and Distribution of Drugs*.) Although it is not possible to estimate the annual consumption of tranquilizers and non-barbiturate sedative-hypnotics, prescription surveys have suggested that there are almost twice as many prescriptions written for minor tranquilizers and almost two-thirds as many for non-barbiturate sedative-hypnotics as there are for barbiturates. (See Appendix B *Legal and Illegal Sources and Distribution of Drugs*.)

We recommend that serious consideration be given to estimating the reasonable needs for medical purposes of drugs with a potential for non-medical use and to attempting to limit manufacture and import to these amounts. Such a system would at least encourage serious annual review of legitimate requirements and, hopefully, some movement towards limitation. There are, however, real dangers in placing unrealistic restrictions on availability for medical purposes. In many cases it may merely lead to a shift to other drugs or to the encouragement of an illicit market. In the final analysis, the level of legitimate medical need is determined by medical judgment, and efforts must be concentrated on influencing the medical profession to follow sound practices in the use of drugs and to exercise restraint in prescribing. While it is highly desirable that we control, and if possible reduce, the amount of medically approved drug use for mood-modifying purposes, we must face the fact that people are going to continue to seek these drug effects to a considerable extent, and that they are going to find the necessary drugs in one place or another. In imposing excessive restrictions on the availability of these drugs through physicians we may in some cases replace medical judgment, by the virtual absence of control in an illicit market. What this simply means is that in considering any proposed policy of severe restriction or prohibition of availability we must always consider the possible cost of a virtually uncontrollable illicit market. The more we consider the system

* The medical uses of amphetamines have also been restricted in the United States.

of controls for limiting the use of psychotropic drugs to legitimate medical needs the more we see that it rests in the final analysis on the good sense and judgment of the medical profession. At the same time, overproduction leads to strong and irresistible pressures on the medical profession to make use of drugs. Thus there must be encouragement of restraint at both ends of the distribution system. **A government-sponsored mechanism of consultation, involving representatives of the pharmaceutical industry and the medical profession, to estimate reasonable requirements of drugs for medical purposes and to set up goals of restraint, would probably serve a useful purpose. The guidelines approach would probably be preferable to an attempt to set arbitrary limits.**

Controls on Prescribing Practices

Reliance on the good judgment and self-restraint of physicians, accompanied by more intensive efforts to educate the profession in the responsible use of drugs,⁵⁹ is also the only answer in the long run to the problem of control of prescribing practices. Administrative controls of prescribing can detect manifest abuses, but they cannot monitor more subtle judgments involved in good medical practice as to what is a legitimate medical requirement and what is no longer justified on sound medical grounds. It would be necessary to have a doctor to look over every other doctor's shoulder. We simply have to rely on the physician, and physicians have to be brought to a keener sense of the responsibility which such reliance involves. **At the same time we could do more to improve our techniques for detecting the more obvious abuses of misprescribing and overprescribing, as well as cases of "prescription shopping" or "double doctoring". At the present time our monitoring system is a very rudimentary one based on manual techniques. What is required is a fully automated central control system which would give the government the basis for monitoring overall consumption of prescription drugs, as well as individual prescribing and consumption patterns.** The details of such a system, which is presently under study, we leave to others more expert in these matters than ourselves. In our *Interim Report* we suggested that every medical prescription be required to bear the physician's licence number and the patient's social insurance number. (In the case of a tourist requiring a prescription, the social insurance number might be replaced by his signature, passport number or some other mark of identification.) Pharmacists should be obliged to make careful verification of the identity of the persons for whom they fill a prescription, much as a bank teller must do on presentation of a cheque.

Another issue with respect to prescription controls is the problem posed by the prescription which is transmitted by telephone. Although this practice is valued by physicians for its convenience and the rapidity with which an urgent prescription can be filled, pharmacists express concern about it. They point out that without a written prescription their record-keeping is greatly

complicated, and that telephone prescribing invites carelessness on the part of the physician. **Since it would be unwise to remove all possibility of transmitting a prescription by telephone in cases of emergency, we recommend a regulation that would limit telephone prescriptions of designated drugs with a potential for non-medical use to a quantity that is sufficient for not more than 48 hours or that would oblige the physician to furnish the pharmacist with a written prescription within 48 hours of the telephone transmission.**

DRUG CLASSIFICATION FOR CONTROL PURPOSES

A major concern in the control of availability is the appropriate classification or scheduling of specific drugs. In the preceding discussion we have referred to some drugs which obviously invite reconsideration at this time. The basic issues are whether a drug is to be made legally available at all, and if so, to what extent; whether, if it is to be available for medical purposes, there is to be a requirement of prescription; and the strictness of the other controls that are to be imposed on manufacture, safekeeping, distribution, record-keeping, reporting, inspection and audit.

Decisions as to proper scheduling must be based on a continuous review of the circumstances relating to each drug. **Over-the-counter drugs have to be kept under review to determine whether any of them should be made subject to the requirement of prescription. On this subject the Commission does not have anything to add to the recommendation in its Interim Report that systematic study be undertaken at regular intervals of all over-the-counter drugs and that those found to be especially hazardous be dispensed only by prescription.** There has been controversy as to whether over-the-counter drugs should be available only in pharmacies because of the information which pharmacists can furnish on request. We do not think this touches the real issue, which is the extent to which they are to be available for self-medication without the intervention of medical judgment and advice. The requirement of prescription adds to the consumer's inconvenience and expense so that it must not be imposed without good cause. The decision must be taken in each case on a very careful examination of all the pertinent facts. It would not be appropriate for the Commission to make recommendations with respect to specific drugs.

At the present time there does not appear to be a significant public health problem in Canada caused by the non-medical use of over-the-counter drugs for their psychotropic properties, although the therapeutic effectiveness of many such preparations (e.g., alleged sedatives and tranquilizers) has been seriously challenged. At the same time there are special grounds for concern about adverse effects of some of the over-the-counter drugs, as, for example, the high rate of accidental poisoning from A.S.A. (Aspirin®), particularly among children. The answer to such problems is not to subject A.S.A. to the requirement of prescription (as some have urged) since this would be impractical, nor even to restrict its distribution to pharmacies, which would also

cause great inconvenience without any compensating benefits, but to assure, through information programs, that there is adequate public understanding of the dangers of accidental poisoning (as well, for example, as the danger of such other problems as gastric bleeding in the case of A.S.A.) and that adequate measures are taken through the use of safety standards, including improved packaging and other precautions, to reduce access by children to drugs of all kinds.

The differences in the international and Canadian scheduling of drugs emphasize the fact that appropriate drug classification for control purposes depends on local conditions, and that there must be sufficient flexibility in international control instruments to permit the development of control regimes which are appropriate to the conditions in each country. Too much detail in international control instruments may require the imposition of certain domestic controls on a particular drug before they are appropriate.

The goal of international drug control policy should not be so much to dictate the specific details of the domestic policy of individual states, but to prevent the domestic policy of one state from being undermined by the policy of another. In fact, this can only be accomplished by a relatively high degree of agreement and cooperation on certain common objectives. At the same time, international control policy should allow as much flexibility as is consistent with this necessary agreement and cooperation for the development of domestic policy along lines which seem best suited to each state. International policy has not always struck this balance as happily as it might. It has sometimes developed a rather too detailed and rigid framework for national policies, but recent developments reflect an increased awareness of the need for reasonable flexibility. National policies must be permitted some scope for evolution to meet changing conditions. International agreements are entered into infrequently and usually remain relatively unchanged for years. They are not as easy to amend or replace as legislation. Meanwhile, conditions and perceptions change in each country, and there must be sufficient scope for response to these changes.

IS A NEW LEGISLATIVE AND ADMINISTRATIVE CODIFICATION DESIRABLE ?

In recent years there has been a movement towards replacing the legislation that had developed in a rather piecemeal or *ad hoc* fashion in the drug control field by comprehensive statutes reflecting not merely a codification of the existing law but a new approach to drug classification for control purposes. A common feature of these legislative reforms has been the development of new drug schedules for the purpose of indicating the administrative controls and criminal law sanctions to be applied in each case.

Examples of these comprehensive statutes are the federal *Controlled Substances Act* in the United States, which was enacted in October 1970, and the *Misuse of Drugs Act 1971*, of Great Britain.

The American statute contains five schedules which group drugs according to the following criteria for control purposes: Schedule I—the drug has a high potential for abuse, no currently accepted medical use, and there is a lack of accepted safety for use under medical supervision; Schedule II—the drug has a high potential for abuse, it has a currently accepted medical use, and its abuse may lead to severe psychological or physical dependence; Schedule III—the drug has a potential for abuse less than the drugs in Schedules I and II, the drug has a currently accepted medical use, and its abuse may lead to moderate or low physical dependence or high psychological dependence; Schedule IV—the drug has a low potential for abuse by comparison with the drugs in Schedule III, it has a currently accepted medical use, and its abuse may lead to limited physical or psychological dependence by comparison with the drugs in Schedule III; Schedule V—the drug has a low potential for abuse by comparison with the drugs in Schedule IV, it has a currently accepted medical use, and its abuse may lead to limited physical or psychological dependence by comparison with the drugs in Schedule IV. The essential criteria, then, are accepted medical use, potential for abuse, and risk of physical or psychological dependence, or other harm. These criteria lead to groupings of pharmacologically different substances, and they do not solve some of the problems of credibility arising from the apparent assimilation of quite different drugs. Schedule I contains various synthetic and semi-synthetic opiates, including heroin, but it also contains certain hallucinogenic amphetamine derivatives (such as MDA and STP), LSD, marijuana, mescaline, peyote, psilocybin, and THC. Thus, there is an even greater mixture of pharmacological categories in Schedule I than that which is complained of in Canadian legislation in the assimilation of cannabis to the opiate narcotics. Moreover, in the stated criteria for Schedule I drugs, there is no reference (as there is in the criteria for other schedules) to dependence-producing potential, although many of the drugs listed there have such potential. This omission could give a misleading impression. It undoubtedly arises from the fact that drugs with a serious dependence-producing potential, such as heroin, have been grouped with those which do not have one, such as the hallucinogens. Schedule II includes certain natural and synthetic opiate narcotics, such as opium, morphine, pethidine and methadone, as well as cocaine, amphetamine, methamphetamine and the amphetamine-like drugs, phenmetrazine (Preludin®) and methylphenidate (Ritalin®). Distinctions are made in the criminal sanctions applicable to drugs in Schedule I and II which are defined as “narcotic drugs” (opiates and cocaine) and the other drugs in these schedules, but trafficking offences involving marijuana are subject to the same maximum penalties as those involving the strong hallucinogens and the amphetamines. It is not our purpose here to criticize the American legislation but to emphasize the difficulty of devising any theoretical basis for drug control classification that does not involve some apparent incongruities or anomalies. The attempt to formulate fairly general criteria which are not always easy to apply, but for which there must be

findings, may also introduce considerable complication into drug control administration.

In the British *Misuse of Drugs Act 1971*, there are three groupings of drugs for control purposes—Class A, Class B and Class C—with differences in the range of criminal law penalties applicable to each. No criteria are stated for the three classes, which is probably a shrewd acknowledgement that their selection is essentially pragmatic and cannot be easily summed up in any generalization. Class A contains THC, LSD, mescaline and certain other hallucinogens, as well as the major natural and synthetic opiate narcotics and cocaine. Class B contains cannabis and cannabis resin (marijuana and hashish), as well as amphetamine and certain amphetamine-like drugs, such as methylphenidate (Ritalin®) and phenmetrazine (Preludin®), and various forms of codeine. Class C includes the sedative hypnotic methaqualone (e.g., Mandrax®) and certain antidepressant and stimulant drugs such as piperidol (Meratran®). It should be noted that the *Misuse of Drugs Act* makes no reference to barbiturates, minor tranquilizers or non-barbiturate sedatives other than methaqualone, although they require prescription. The maximum penalties are the same for Class A and Class B drugs in all cases except the offence of simple possession, where the maximum terms of imprisonment are seven and five years respectively, on indictment, and twelve and six months respectively, on summary conviction. The main differences in the range of penalties are with respect to Class C drugs.

The *Convention on Psychotropic Substances* introduces a new set of schedules which contain different groupings than those in American, British and Canadian legislation. The criteria which determine inclusion in these schedules are not spelled out in the Convention, but, according to a report of the Expert Committee on Drug Dependence of the World Health Organization,⁶⁰ they are as follows: Schedule I (hallucinogens)—“Drugs recommended for control because their liability to abuse constitutes an especially serious risk to public health and because they have very limited, if any, therapeutic usefulness”; Schedule II (amphetamine and amphetamine-like drugs)—“Drugs recommended for control because their liability to abuse constitutes a substantial risk to public health and because they have little to moderate therapeutic usefulness”; Schedule III (short-acting barbiturates)—“Drugs recommended for control because their liability to abuse constitutes a substantial risk to public health, although having moderate to great therapeutic usefulness”; Schedule IV (long-acting barbiturates, non-barbiturate sedative-hypnotics, minor tranquilizers and stimulant-anorectics)—“Drugs recommended for control whose liability to abuse constitutes a smaller but still significant risk to public health, and having a therapeutic usefulness ranging from little to great.”

The short-acting barbiturates in Schedule III are subject, as we have seen, to less strict controls than the amphetamines in Schedule II. In particular, a stricter obligation of record-keeping is required of pharmacists in the case of the drugs in Schedule II than in the case of those in Schedule

III. The Canadian policy of placing the barbiturates under the same controls on availability as the amphetamines (subject to the further restrictions recently imposed on the medical use of the latter) appears to be more justified, in view of the dependence-producing potential of the barbiturates and the dangers of death from overdose. But this difference in scheduling does not present a problem, since a party is free to adopt stricter control measures for any drug than those required by the Convention. The difference in this case does, however, serve to indicate that it would not be convenient for Canada to adopt the precise system of schedules of the Convention as a new classification for control purposes. On the other hand, if Canada becomes a party to the Convention there will have to be a number of changes in the present Canadian classifications for control purposes. In particular, a number of drugs presently on Schedule F of the *Food and Drug Regulations* would have to be placed under a more strict control regime.

In considering what new grouping of drugs might be desirable in order to give effect to essential distinctions for control purposes, it is necessary to have some conception of the essential distinctions which have to be made with respect to different classes of drugs. A distinction must be drawn between administrative controls on availability and criminal prohibitions and sanctions. **All drugs which are required for medical use but which are liable to be used for non-medical purposes, and have a dependence-producing potential or carry some other risk of serious harm, should probably be subject to the same administrative controls on availability, including licensing, prescription, record-keeping, reporting, safeguards against loss or theft, inspection, and audit.** Since these requirements involve additional work and expense for the administration as well as those engaged in manufacture and distribution they should only be applied (apart from international requirements) to drugs which clearly meet the above criteria. (The reporting requirements for pharmacists are particularly onerous.) There should be another class of drugs for medical use to which the minimal prescription requirement of Schedule F of the *Food and Drug Regulations* would apply. These would be drugs which, because of some risk or another, should not be taken without medical approval, but which do not have a sufficient potential for harm or actual non-medical use to justify applying all the other administrative controls to them.

Insofar as criminal law prohibitions and sanctions are concerned, distinctions must be made between the various classes of drugs according to the relative seriousness of trafficking in them. While it may be reasonable to apply essentially the same administrative controls on availability for medical purposes to the opiate narcotics, cocaine, the amphetamines, the barbiturates and certain of the drugs presently on Schedule F of the Regulations, it would not be reasonable to apply the same maximum penalties to trafficking in any of these drugs—at least, not unless we are prepared, as they have done in some other countries, to reduce the maximum penalties for trafficking in the opiate narcotics to those which appear to be appropriate for other

controlled drugs. For reasons already indicated, this would not appear to be advisable. Thus there would have to be a distinction between classes of drugs with respect to maximum penalties for trafficking. Finally, it would not be appropriate to deal with unauthorized possession for personal use in the same way for all drugs for which essentially the same system of administrative controls on availability would be appropriate. Thus, there would have to be further distinctions between classes of drugs for such purposes. Our conclusions and recommendations concerning the application of the criminal law to unauthorized simple possession or use are contained in the next section. It is sufficient to note here that they cannot be inferred from the strictness of the administrative controls on availability which are considered to be appropriate to each class of drugs.

A legislative re-formulation of the control system to give adequate expression to these essential distinctions might show little improvement, from the point of view of clarity or economy, on the present legislative arrangements. What would be required would be a new statute and set of regulations to replace the *Narcotic Control Act* and Parts III and IV of the *Food and Drugs Act* and their respective regulations. The drugs to be subject to control under the new act could be grouped together in schedules or sub-divisions of schedules according to the following criterion: drugs would be grouped together if they were to be treated alike in respect of each of the following matters—administrative controls on availability, prohibitions and penalties with respect to unauthorized distribution, and prohibitions and penalties with respect to unauthorized simple possession or use. **We may consider one possible re-classification to reflect these essential distinctions and to give effect to the requirements of the Convention on Psychotropic Substances, 1971.**

The opiate narcotics, with cocaine, constitute a group of drugs to which it is appropriate to apply the same standards with respect to controls on availability and criminal sanctions. Cocaine is pharmacologically different from the opiate narcotics, but this would not appear to justify placing it in another classification, since circumstances require the application of the same control measures to it. In this case, the grouping with the opiate narcotics does not, as it does in the case of cannabis, convey a seriously misleading impression as to its relative potential for harm. To mark its pharmacological difference, however, cocaine could be placed in a subdivision of this first category. **Thus, with the necessary change to place cannabis in a more appropriate classification, the drugs in the Schedule of the Narcotic Control Act could constitute the first group.**

A second group could consist of the hallucinogens covered by Schedule I of the Convention on Psychotropic Substances and Schedule H of the Food and Drugs Act. If Canada became a party to the Convention certain drugs would have to be transferred to this group from other schedules. In particular, mescaline would have to be transferred from Schedule F of the *Food and Drug Regulations*. Psilocin and psilocybin, which are not listed in any of the Canadian schedules, would also have to be included in this group. DMHP

is presently covered as a cannabis derivative in the Schedule of the *Narcotic Control Act*. In effect, only four of the ten drugs in Schedule I of the Convention are presently included in Schedule H of the *Food and Drugs Act*. The other six are either included in other schedules or are in no schedule at all.

Included in these six drugs is THC, which is presently with other forms of cannabis in the Schedule of the *Narcotic Control Act*. An appropriate classification would have to be determined for cannabis, in accordance with the legislative policy which the Government decides to adopt with respect to it. The conclusions and recommendations of the Commission concerning such legislative policy are contained in our *Cannabis Report*. Certainly, cannabis has closest affinity with the hallucinogens. On the assumption, however, that it is likely to be considered appropriate to apply somewhat different provisions to it than to the strong hallucinogens, at least with respect to criminal sanctions, **it might be advisable to constitute two subdivisions in the second group: one for the strong hallucinogens, and one for cannabis, and any other hallucinogens with a relatively lower potential for harm.**

A third group could consist of the amphetamines and amphetamine-like drugs, the barbiturates, and the minor tranquilizers and sedative-hypnotics with an abuse potential which justifies the application of strict controls on availability. Once again, there could be subdivisions to permit distinctions which appear to be appropriate in respect of criminal sanctions. To conform to the requirements of the *Convention on Psychotropic Substances* certain drugs would have to be transferred to the third group from present classifications.

In the category of the amphetamines and amphetamine-like drugs, methylphenidate (Ritalin®) would have to be transferred from its present classification in Schedule F of the *Food and Drug Regulations*. This would appear to be a wise decision and a logical sequel to the transfer of phenmetrazine (Preludin®) to the controlled drug category. Dexamphetamine (dextro-amphetamine), which is included in Schedule II of the Convention, is covered under Schedule G of the *Food and Drugs Act*.

The short-acting barbiturates in Schedule III of the Convention are all regulated as controlled drugs. The only change required by this Schedule would be the transfer of glutethimide from Schedule F of the Regulations. This drug would be better included in a subdivision consisting of minor tranquilizers and sedative-hypnotics.

Three out of the eleven drugs in Schedule IV of the Convention—barbital, phenobarbital and methylphenobarbital—are presently in the controlled drug category and would be better included in the subdivision for the barbiturates. Seven of the drugs in Schedule IV—amfepramone (diethylpropion), ethchlorvynol, ethinamate, meprobamate, methaqualone, methylprylon, and pipradol—would have to be transferred from their present classification as drugs in Schedule F of the *Food and Drug Regulations*.* They would be

* Methaqualone was transferred in June 1973 from Schedule F of the *Food and Drug Regulations* to Schedule G of the *Food and Drugs Act*.

appropriate for inclusion in the sub-group consisting of the sedative-hypnotics, minor tranquilizers and the amphetamine-like drugs. The other drug in Schedule IV of the Convention—SPA—is not available in Canada and is accordingly not on any schedule in the Canadian legislation. **The third group could include drugs which are not presently in Schedule IV, such as the minor tranquilizers Valium® and Librium®, but which are considered to be appropriate for the same controls as other drugs in this grouping.**

A fourth group could consist of drugs which require prescription, but which do not require the strict controls on availability applied to drugs in the first, second and third groups. Different criminal law prohibitions and sanctions for unauthorized distribution of drugs in the fourth group would also be appropriate.

There would, of course, also have to continue to be a category of drugs corresponding to the present Schedule F of the Act, the sale of which is totally prohibited for all purposes.

SHOULD CANADA BECOME A PARTY TO THE CONVENTION ON PSYCHOTROPIC SUBSTANCES?

The foregoing discussion indicates some of the implications of Canada's becoming a party to the *Convention on Psychotropic Substances*. The question that presents itself is should Canada become a party, and if so, on what conditions. The Convention permits states to become a party with reservations, but the matters for which a reservation may be made without the agreement of other parties are limited. On becoming a party a state may make reservations without such agreement with respect to the following matters: the kinds of action which may be taken by the International Narcotics Control Board in a case of failure to comply with the provisions of the Convention; the provisions respecting territorial application of the Convention; the provisions respecting settlement of disputes; and the status of wild plants containing psychotropic substances in Schedule I which are traditionally used by "certain small, clearly determined groups in magical or religious rites".

A party may make reservations with respect to other provisions of the Convention provided they are not objected to within twelve months by one-third or more of the parties. A party that does object to a reservation need not assume towards the reserving party any obligation under the Convention which is affected by the reservation.

The right to make reservations at the time of becoming a member offers some flexibility; so also do the terms of the Convention in many places. **But with all the flexibility available, the Convention would still require important changes in Canada's system of controls on availability of drugs for medical and scientific purposes.** In particular, it would substantially increase the obligation to monitor and report on inventories. There would have to be annual reporting to the International Narcotics Control Board not only on the controlled drugs and the restricted drugs for which there are presently records

but also on a number of drugs on Schedule F of the *Food and Drug Regulations* for which there are presently no such records. There would be a great increase in the amount of record-keeping and reporting required.

The obligation with respect to penal provisions would not require any changes in Canadian law. For example, the Convention does not require the simple possession or use of the drugs in Schedules II, III and IV to be made a punishable offence. The provisions respecting the strong hallucinogens, including THC, in Schedule I of the Convention would restrict Canada's policy options in the future, since they appear to require, as indicated in the next section, that use, or at least simple possession, be made a punishable offence.

On the whole, the present Canadian control system is substantially in accordance with the essentials of the system provided by the Convention. Canadian policy has very largely anticipated the international requirements and in many cases goes beyond it. **While changes would be required in the Canadian system to bring it into full conformity with the provisions of the Convention, they would be along logical lines of development for Canadian policy.** Indeed, as we have indicated, the provisions of the Convention do not go as far as we think they should, particularly in not bringing the minor tranquilizers under a stricter control regime. But as we have pointed out, the Convention does not prevent a party from imposing stricter controls on particular drugs.

There are always some inconveniences, additional burdens and losses of flexibility in international commitments, but these are counterbalanced in this case by the importance of international standards and cooperation in drug control policy. As we said earlier, the drug control policies of particular states can be seriously impeded by the lack of sufficient international cooperation with respect to control of availability. Sweden, for example, has felt that its attempt to control the non-medical use of stimulants has been seriously undermined by lack of cooperation from other nations, and this concern was one of the prime reasons for its support of the *Convention on Psychotropic Substances*. **Despite some of the inconveniences involved, we believe that Canada should continue to support these efforts to assure that domestic drug control policies are not undermined by lack of sufficient international cooperation. For these reasons we recommend that Canada become a party to the Convention on Psychotropic Substances, with such reservations (or amendments) on particular matters as are considered to be necessary and consistent with the other policy recommendations in this report.**

It must be remembered, that apart from the right to make reservations at the time of becoming a party, a state always has the right to propose amendments or to withdraw from the Convention, should that be considered necessary because of changes in policy. As in the case of the *Single Convention*, the *Convention on Psychotropic Substances*, 1971, provides that a party may withdraw as of January 1st in any year upon giving six months clear prior notice. The possibility of such recourse, if absolutely necessary, may assist a party to obtain desired amendments to the Convention.

NOTES

1. The *Single Convention on Narcotic Drugs, 1961*, was developed by the Commission on Narcotic Drugs pursuant to a direction from the Economic and Social Council in 1958. It was adopted and opened for signature in March 1961 at a United Nations plenipotentiary conference in which seventy-three states participated. Its general purpose was to replace the existing multi-national treaties in the field by a single system which would limit narcotic drugs to medical and scientific use. It came into force on December 13, 1964.
2. The *Convention on Psychotropic Substances, 1971*, was approved as a basis for international agreement at a plenipotentiary conference at which more than seventy states were represented in Vienna in February 1971. Canada participated in the preparation of the Convention but, along with many other states, reserved her decision as to whether to become a party to it. States may become parties to the Convention by signing it, by ratifying it after signing it subject to ratification, or by acceding to it. The Convention was open for signature until January 1, 1972 and thereafter a state may become a party by accession.
3. These amendments, designed to strengthen the provisions of the *Single Convention* in several respects, including the functions of the International Narcotics Control Board, were adopted at a plenipotentiary conference attended by the representatives of 97 states in Geneva in March 1972. The amendments come into force after forty states have ratified or acceded to the Protocol embodying them.
4. WHO Expert Committee on Dependency Producing Drugs, *Sixteenth Report*, Wld. Hlth. Org. techn. Rep. Ser., 1969, no. 407, p. 6.
5. Article 36.
6. Article 2, paragraph 4.
7. Article 2, paragraph 5.
8. Article 7.
9. Article 5, paragraph 2.
10. R.S.C. 1970, c. N-1.
11. *Narcotic Control Regulations*, 4 to 22.
12. *Ibid.*, 23 to 37.
13. *Ibid.*, 38 to 41.
14. *Ibid.*, 42 to 44.
15. *Ibid.*, 37 and 41. The Bureau of Dangerous Drugs issues "restricted lists" of practitioners and pharmacists to whom certain drugs must not be sold or otherwise made available.
16. *Ibid.*, 47, as amended by P.C. 1972-1795, 24 August 1972, SOR/72-337, 28 August 1972.
17. *Ibid.*, 3.
18. *Ibid.*, 3(3).
19. *Ibid.*, 51.
20. *Narcotic Control Act*, s. 5.

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21. *Ibid.*, s. 4.
22. *Ibid.*, s. 6.
23. *Criminal Code*, s. 646.
24. R.S.C. 1970, c. F-27.
25. *Food and Drug Regulations*, J.01.033, as amended by P.C. 1972-1794, 24 August 1972, SOR/72-336, 28 August 1972.
26. *Food and Drug Regulations*, Part J.
27. Section 42.
28. *Food and Drug Regulations*, Part G.
29. *Food and Drugs Act*, s. 34.
30. Amendments to *Food and Drug Regulations*, Part G, by Order in Council P.C. 1972-3049, December 19, 1972, SOR/73-17, December 21, 1972.
31. *Food and Drug Regulations*, G.06.001, as amended by P.C. 1972-1794, 24 August 1972, SOR/72-336, 28 August 1972.
32. *Food and Drug Regulations*, C.01.041 and following.
33. *Food and Drugs Act*, s. 26.
34. *Ibid.*, s. 2.
35. R.S.C. 1970, c. P-25.
36. Section 15.
37. In addition to enforcement of certain federal statutes the R.C.M. Police act in several provinces as provincial police.
38. G. L. Tomalty (Inspector, Officer in Charge, Drug Enforcement Branch, R.C.M. Police), Personal communication to the Commission, December 6, 1972.
39. G. L. Tomalty, Personal communication to the Commission, December 15, 1972.
40. Section 423.
41. D. Craigen (Director, Medical Services, Canadian Penitentiary Service), Personal communication to the Commission, August 30, 1972.
42. Canada, Department of the Solicitor General of Canada, Statistical Information Centre, *Study on Drug Traffickers*, May 1972.
43. For example, there was a seizure in Vancouver in 1972 of a clandestine laboratory capable of producing very large quantities of MDA.
44. It should be observed, however, that American law enforcement authorities claim to have created a marked shortage of heroin on the east coast of the United States in 1972. This was reflected in an increase in price and a decrease in the purity of street heroin. See *Federal Strategy for Drug Abuse and Drug Traffic Prevention 1973* (Report by the Strategy Council on Drug Abuse to the President), p. 112. There is also reference to this shortage in Appendix B *Legal and Illegal Sources and Distribution*.
45. This is true of the maximum penalty of life imprisonment. There are certain aspects of American federal and state law that are more severe than the Canadian, in particular, the imposition of minimum mandatory sentences in certain cases, and especially severe provisions in the federal law with respect to distribution to minors and traffickers engaged in continuing criminal enterprise.
46. Under the *Misuse of Drugs Act 1971*, trafficking offences involving the opiate narcotics are punishable, on summary conviction, by a maximum of 12 months' imprisonment or a fine of £400, or both, and on indictment, by a maximum of 14 years' imprisonment, or a fine, or both.

47. Trafficking is punishable in Australia by imprisonment for a maximum of 10 years.
48. Trafficking is punishable in New Zealand by imprisonment for a maximum of 14 years.
49. In France trafficking in the opiate narcotics is punishable by imprisonment from two to ten years, and in the case of production, manufacture, importation or exportation, by imprisonment from 10 to 20 years. In West Germany trafficking in the opiate narcotics is punishable by imprisonment from one to ten years. In Denmark, Sweden and Norway the maximum penalty for trafficking is six years. In Finland it has been increased to ten years, and it has been proposed to adopt the same increase in Norway. In Belgium trafficking offences are punishable by imprisonment from three months to two years. In the Netherlands the maximum penalty for wilful commission of trafficking offences is four years' imprisonment. In Italy trafficking offences are punishable by imprisonment from three to eight years. In Switzerland serious cases of trafficking are punishable by imprisonment for a term not exceeding five years.
50. 1908 Stat. Can., c. 50.
51. 1911 Stat. Can., c. 17, and 1921 Stat. Can., c. 42.
52. 1953–54 Stat. Can., c. 38.
53. 1923 Stat. Can., c. 22.
54. Report of the Canadian Committee on Corrections: *Toward Unity: Criminal Justice and Corrections* (Ottawa: Queen's Printer, 1969), p. 210.
55. 1921 Stat. Can., c. 42.
56. *Debates*, House of Commons, Canada, 1961, pp. 6214, 6216 and 6218.
57. *Cannabis Report*, p. 302.
58. *Barbiturate Abuse in the United States*. Report of the Sub-Committee to Investigate Juvenile Delinquency by Senator Birch Bayh, Chairman, to the Committee of the Judiciary, United States Senate, December 1972. U.S. Government Printing Office, Washington, 1972; *A Study of Current Abuse and Abuse Potential of the Sedative-Hypnotic Derivatives of Barbiturate Acid with Control Recommendations*, Department of Justice, Bureau of Narcotics and Dangerous Drugs, November 16, 1972.
59. This process might be assisted by the formulation of prescribing guidelines in certain areas by the medical profession. For example, there might be guidelines with respect to the prescribing of the barbiturates and certain other sedative-hypnotics, which are the drugs most commonly responsible for suicide and accidental poisoning deaths in North America (see Appendices A.7 and A.8). Such self-poisoning generally involves impulsive behaviour and the immediate availability of toxic drugs, typically in the house from a previous medical prescription. Consequently, it has frequently been recommended that limits be placed on the maximum quantity of drugs with significant lethal potential which can be obtained on a single prescription. Suggestions have included, for example, a limit of two weeks' normal medical doses at a time, or some quantity below that generally considered lethal. It has also been suggested that physicians be actively encouraged to prescribe the less toxic sedatives (e.g., the benzodiazepine minor tranquilizers) in place of the physically more dangerous drugs in those applications where it would be in keeping with therapeutic needs.
60. World Health Organization, *WHO Expert Committee on Dependence: Seventeenth Report* (WHO Technical Report Series, no. 437), 1970, pp. 13–18.

Section VII

Control of the User

THE REQUIREMENTS OF THE INTERNATIONAL CONVENTIONS

Reference has been made in the previous section to the provisions of the *Single Convention on Narcotic Drugs, 1961*, and the *Convention on Psychotropic Substances, 1971*, with respect to the control of availability. It is necessary here to direct attention to the provisions which contemplate control of the user.

It will be recalled that the *Single Convention* requires the parties to take such legislative and administrative measures as may be necessary "to limit exclusively to medical and scientific purposes the production, manufacture, export, import, distribution of, trade in, use and possession of drugs". Article 36, which provides for penal provisions, does not explicitly require that use as such be made a punishable offence.¹ It refers to "possession", and it could be argued that it is possession in the context of distribution. This is a reasonable inference from the fact that all the other acts specified by Article 36 are acts of production or distribution, and such a construction is reinforced by the use of the word *détention* for possession in the French version of the article. Some have taken the position that Article 36 does not contemplate simple possession for use. The prevailing view in the international community, however, appears to be that the Convention requires parties to make simple possession a punishable offence. It is to be noted that Article 36 requires not only certain specified acts to be made punishable offences, but also "any other action which in the opinion of such Party may be contrary to the provisions of this Convention". Thus the parties are given considerable scope to determine the range of penal offences which they think is necessary to achieve the objectives of the Convention. As far as we are able to ascertain, most parties to the Convention have made simple possession or use a penal offence. Thus, by their own legislative behaviour, states have tended to give this construction to their obligations under Article 36, although on the basis of technical interpretation a good case could be made for limiting the meaning of possession to possession for the purpose of trafficking.

Article 22 of the *Convention on Psychotropic Substances*, 1971, does not, as we have seen, indicate the specific kinds of conduct which must be made punishable offences, as does Article 36 of the *Single Convention*. Instead, it refers generally to any action contrary to such laws and regulations as the parties see fit to adopt in fulfilment of their obligations under the Convention. This would appear to offer more flexibility as to the choice of conduct which must be made a punishable offence. There is, however, with respect to Schedule I drugs (hallucinogens, including THC but not marijuana or hashish) an explicit obligation to prohibit all use except for scientific and very limited medical purposes by authorized persons in approved institutions.² This would appear necessarily to involve making non-medical use, or at least simple possession for purposes of such use, a punishable offence. This is not the case with the drugs in Schedule II (amphetamines and certain drugs with similar action), Schedule III (short-acting barbiturates and drugs with similar action), and Schedule IV (various other sedative-hypnotics, minor tranquilizers and stimulants). A party is required to limit "by such measures as it considers appropriate", the manufacture, distribution and "use and possession" of these drugs to medical and scientific purposes.³ Such drugs are to be made available only upon prescription, but there does not appear to be an obligation to make use or simple possession of such drugs for unauthorized purposes a punishable offence.

There has been increasing concern in the international community to distinguish between trafficking and use, and to encourage the application of non-penal measures to the user. This shift in emphasis is reflected in the following provision in Article 22 of the *Convention on Psychotropic Substances*, 1971:

. . . when abusers of psychotropic substances have committed such offences, the Parties may provide, either as an alternative to conviction or punishment or in addition to punishment, that such abusers undergo measures of treatment, education, after-care, rehabilitation and social reintegration . . .

This provision, which could be applied to persons convicted of trafficking offences as well as those convicted of simple possession or use, reflects the thinking that it may be more appropriate to apply non-penal measures to the drug-dependent person, regardless of his offence. Its purpose is to give states more flexibility in social policy with respect to the user. It is to be noted, however, that this alternative necessarily involves some degree of compulsion or coercion of the user.

The *Single Convention* has not contained this provision until recently, although the lack of it has not prevented the development of compulsory treatment as an alternative to imprisonment in several states. Formerly, the only reference to treatment in the *Single Convention* was Article 38, which reads:

1. The Parties shall give special attention to the provision of facilities for the medical treatment, care and rehabilitation of drug addicts.

2. If a Party has a serious problem of drug addiction and its economic resources permit, it is desirable that it establish adequate facilities for the effective treatment of drug addicts.

The amendments to the *Single Convention* adopted in March 1972 incorporate the above provision of the *Convention on Psychotropic Substances*, 1971, concerning alternatives to punishment. Article 38 of the *Single Convention*, as amended, applies the language of Article 20 of the *Convention on Psychotropic Substances*, 1971 to narcotic drugs as follows:

1. The Parties shall give special attention to and take all practicable measures for the prevention of abuse of narcotic drugs and for the early identification, treatment, education, after-care, rehabilitation and social reintegration of the persons involved and shall co-ordinate their efforts to these ends.
2. The Parties shall as far as possible promote the training of personnel in the treatment, after-care, rehabilitation and social reintegration of abusers of narcotic drugs.
3. The Parties shall take all practicable measures to assist persons whose work so requires to gain an understanding of the problems of abuse of drugs and of its prevention, and shall also promote such understanding among the general public if there is a risk that abuse of drugs will become widespread.

CANADIAN LAW AND LAW ENFORCEMENT WITH RESPECT TO CONTROL OF THE USER

THE PROHIBITIONS

Under Canadian federal law, the unauthorized possession for purposes other than trafficking of the drugs covered by the *Narcotic Control Act* and Part IV of the *Food and Drugs Act* is a criminal offence. These include the opiate narcotics, cocaine, cannabis, and the strong hallucinogens. The simple possession without authorization of the controlled drugs (amphetamines and barbiturates) in Schedule G of Part III of the *Food and Drugs Act* and of the prescription drugs (various sedatives, tranquilizers, stimulants, analgesics, and other substances) covered by Schedule F of the *Food and Drug Regulations* is not an offence.

Under the *Narcotic Control Regulations* "prescription shopping" or "double doctoring" is made an offence in the following terms:

A person in whose favour a prescription or a narcotic has been issued shall not seek or receive another prescription or a narcotic from a different practitioner without disclosing to that practitioner particulars of every prescription or narcotic that he has obtained within the previous thirty days.⁴

There is no such offence for controlled drugs (amphetamines or barbiturates) under Part III of the *Food and Drugs Act*, nor for drugs covered by Schedule F of the *Food and Drug Regulations*.

PENALTIES

The offence of simple possession is punishable under the *Narcotic Control Act* as follows:

Upon indictment, by a maximum of seven years' imprisonment; and

Upon summary conviction, on first offence, by imprisonment for a term not exceeding six months or a fine not exceeding \$1,000 or both, and on a subsequent offence, by imprisonment for a term not exceeding one year or by a fine not exceeding \$2,000 or both.⁵

On indictment, the court may also impose a fine in any amount which it judges appropriate, in addition to imprisonment, but it may not impose a fine in lieu of imprisonment, where, as in this case, the offence is punishable by imprisonment for more than five years.⁶

The simple possession without authorization of the restricted drugs (LSD, etc.) in Schedule H of Part IV of the *Food and Drugs Act* is punishable as follows:

Upon summary conviction, for a first offence, by a fine not exceeding \$1,000 or by imprisonment for a term not exceeding six months, or by both, and for a subsequent offence, by a fine not exceeding \$2,000 or by imprisonment for a term not exceeding one year, or both; and

Upon conviction on indictment, by a fine not exceeding \$5,000 or by imprisonment for a term not exceeding three years, or by both.⁷

Reference is made to Appendix F.3 for further details on the law respecting the offence of simple possession under the *Narcotic Control Act* and Part IV of the *Food and Drugs Act*.

For the policy governing the decision as to whether to proceed by indictment or summary conviction see Appendix F.7 *Prosecution in Drug Cases*.

CONVICTIONS

The number of convictions for the offence of simple possession of drugs other than cannabis under the *Narcotic Control Act* and of the restricted drugs under Part IV of the *Food and Drugs Act* reflect in some measure the level, or relative intensity, of law enforcement against the user.

The opiate narcotics. The vast majority of the convictions for simple possession of drugs other than cannabis under the *Narcotic Control Act* have, of course, involved heroin. Up to the end of 1970 the convictions for simple possession of heroin remained at a fairly stable level of about 200 per annum, as indicated by the following figures: 1968 – 202; 1969 –

192; 1970 – 201. The number of convictions showed a marked rise in 1971, and again in 1972, as indicated by the following figures: 1971 – 378; 1972 – 630.

The figure for 1972 is under four per cent of the estimated total of at least 15,000*heroin-dependent persons in the country, and possibly under one per cent of the total number of heroin users. (See Appendix C *Extent and Patterns of Drug Use*.)

The number of convictions for simple possession of drugs other than heroin (and cannabis) under the *Narcotic Control Act* has been relatively small, although it has been steadily increasing, as indicated by the following figures: 1970 – 57; 1971 – 73; 1972 – 106. Of these drugs, methadone and cocaine have accounted for the highest proportion of convictions.

The number of convictions for “prescription shopping” or “double doctoring” under Section 3(3) of the *Narcotic Control Regulations* has been as follows: 1970 – 12; 1971 – 46; 1972 – 38. (See Appendix E *Conviction Statistics for Drug Offences*, Tables E.1 to E.3 inclusive.) Methadone has been the drug most heavily involved.

In view of the conviction figures some general observations are in order concerning the impact of the criminal law system upon the total population of heroin-dependent persons. The policy of law enforcement against the heroin addict has traditionally been one of containment. There has been a selective policy of harrassment and arrest. Police have not wanted to drive the phenomenon underground or to disperse it too much. They have sought to keep it concentrated, visible and contained. Law enforcement against the user of opiate narcotics takes the form of careful surveillance of well-established meeting places, where distribution takes place, and observation of the subsequent movements of the user with a view to apprehending him in the act of possession. The chief concern of the police is to avoid an ill-timed encounter with the user that will enable him to swallow or otherwise dispose of the substance before it can be seized. The police usually attempt to apprehend the user when he has prepared the substance for use, and is about to use it. Thus the whole approach to apprehension of the user is one which is conditioned by the need to take hold of the substance before it is placed beyond reach. This accounts for the kind of surveillance that is practised, the need to be able to break into premises without warning, and the resort to force to recover the substance when the person in possession attempts to swallow or otherwise dispose of it. The police do not enforce the law against simple possession as intensively as they could, but do so on a selective basis. They are more concerned to know where the user is, and to keep him under surveillance, than to seize every opportunity to arrest him.

The strategy of containment requires a certain toleration of established and localized patterns of dealing in order to be able to keep the using population under observation. In recent years this strategy of containment has been undermined by the spread of opiate narcotic use beyond the traditional

areas of concentration. This has arisen in part because of the increase of such use among younger multi-drug users. The police no longer have the same sense of having the phenomenon under close observation and effective containment. As one officer in Vancouver put it to a member of the Commission's research staff:

Three or four years ago, the heroin scene was totally under control. We knew every addict and we kept them confined to Main and Hastings (known as the corner). If we saw a new face we could really jump the guy and keep him under pressure and maybe convince him to remain "unwired". We had a list of new addicts which we kept at the station. There were 325 addicts on the street, 400 addicts in jail, 400 chipping, and 400 ex-addicts. We were able to keep the number of addicts down.⁸

It is possible that little more than ten per cent of the opiate-dependent population is under the control of the criminal justice and correctional system at any one time. In the fall of 1972 our investigations suggested that there were not more than about 1,550 known opiate dependents in the correctional system in this country. There appeared to be about 450 on probation (of whom just over 70 per cent were in British Columbia) and about 100 on parole (of whom over 90 per cent resided in British Columbia). The number of known 'addicts' believed to be in federal penitentiaries was about 330, and the number in provincial correctional institutions to be about 670. Some of those in correctional institutions were probably dependent on drugs other than the opiate narcotics.⁹

There may, of course, be many other opiate-dependent persons within the correctional system who are not known as such to the authorities. Except for cases involving an offence under the *Narcotic Control Act*, in which a presumption of heroin use is raised at the point of contact with the criminal law system, knowledge of drug use among persons convicted of criminal offences is generally obtained from admission by the offender. What may be said is that the criminal law and correctional system is apparently not aware of exercising control over much more than ten per cent of the addict population. It may be safely asserted that at any one time the vast majority of addicts are on the street.

The maximum penalties in Canada for the simple possession of the opiate narcotics fall within the general range of severity of the penalties in the United States¹⁰ and Great Britain¹¹ and are, generally speaking, more severe than those in Western Europe,¹² Australia¹³ and New Zealand.¹⁴

About forty per cent of the convictions for the simple possession of heroin are disposed of by fine, suspended sentence, probation, and absolute or conditional discharge. (See Table E.15.) Of the remaining 60 per cent of the cases, in which there is a sentence to imprisonment, about 90 per cent of the sentences are for a period under two years, and more than half of the others are for a period under three years.

A high proportion of persons convicted of the simple possession of opiate narcotics have a previous criminal record. The background of heroin addicts in federal penitentiaries shows an average of over eight convictions per person.¹⁵ Previous offences of persons convicted of simple possession include breaking and entering, theft, false pretense, forgery, counterfeiting, possession of stolen property, vagrancy and prostitution. In most cases the previous record consists of drug offences and crimes against property, but there are also many cases of crimes of violence, mainly assault. Over one-third of the addict population in federal penitentiaries appears to have committed one or more crimes of violence. About fifty per cent of the persons imprisoned for the simple possession of heroin have a record of previous drug offences.

The restricted drugs. The total numbers of convictions for simple possession of "restricted drugs" (the strong hallucinogens) in recent years are as follows: 1970 - 1,009; 1971 - 1,253; 1972 - 1,216. The highest proportion of these convictions has been for LSD: 1970 - 956; 1971 - 1,065; 1972 - 830. The next most important drug, in terms of total number of convictions for simple possession, has been MDA, as follows: 1970 - 58; 1971 - 251; 1972 - 379. (See Tables E.66 to E.68 inclusive.) Thus, the convictions for LSD have shown a relative decline, while those for MDA have shown a steady increase. The latter have grown from slightly under six per cent of the number of convictions for simple possession of restricted drugs in 1970 to 31 per cent in 1972.

The proportion of the convictions for the simple possession of LSD which have been disposed of by imprisonment has dropped from about 23 per cent in 1970 to about 12 per cent in 1972. (See Tables E.57 to E.59 inclusive.) The remainder are disposed of by fine, suspended sentence, probation, and absolute or conditional discharge. Over 44 per cent of the convictions and about 50 per cent of the sentences of imprisonment for the simple possession of LSD involve persons under twenty-one years of age. (See Table E.59.) The majority of sentences to imprisonment are for periods under six months and all are under two years. Essentially the same observations apply to convictions for the simple possession of MDA, although the proportion of those under twenty-one years of age is somewhat lower. (See Table E.71.)

OTHER LEGISLATION WITH RESPECT TO THE USER

There are various other federal and provincial legislative provisions prohibiting drug-related conduct. For applicable provisions of the *Criminal Code* of Canada and the role of the *Juvenile Delinquents Act* the reader is referred to Appendices F.4 and F.5, respectively. Reference is made later in this section to the federal *Tobacco Restraint Act* which prohibits the possession, and use in public, of tobacco by persons under the age of 16.

From time to time the provinces have enacted penal provisions relating to non-medical drug use. Provincial legislative jurisdiction for this purpose is discussed in Appendix F.1 *The Constitutional Framework*. There are several such provisions in provincial liquor legislation, including the offence of public drunkenness and the prohibition of purchase or consumption of liquor by minors. Another example is the provision in the *Public Health Act* of Alberta prohibiting the use of a volatile solvent for purposes of intoxication.¹⁶

THE ISSUES WITH RESPECT TO CONTROL OF THE USER

The issues with respect to legal control of the user are whether there is to be an offence of simple possession or use for a particular category of non-medical drug use, what the maximum penalties for such an offence are to be, and whether any control or coercion is to be exercised with respect to the user for other purposes such as quarantine, treatment or indoctrination. In Section V we considered the use of law with respect to the non-medical use of drugs as a matter of general principle, the general effectiveness of the criminal law in controlling availability and use, and the costs of using the criminal law in this field. In this section we wish to look more closely at the issues with respect to control of the user in certain categories of drug use.

Despite the limitations and drawbacks of the criminal justice system in the field of non-medical drug use the majority advocate some control over the drug offender, particularly the user of heroin. The avowed purpose of such control is not merely to prevent the offender from continuing to violate the drug laws and to commit drug-related crime but also to reduce his contact with prospective users. It is felt that users spread drug use by encouraging or facilitating the use of others. In this sense it is argued that they are "contagious" or "infectious". A further reason for seeking control is to direct the user into treatment. It is said that the user often lacks motivation for treatment and needs to be encouraged to seek it.

Others dispute the assumptions underlying the case for control. They do not deny that control may reduce the offender's drug use, although they point out that drugs circulate in most institutions in which there is confinement. They also observe that while the offender's ability to influence the drug use of persons outside the institution may be severely reduced or virtually eliminated, he remains in contact with many prospective drug users within the institution. In any event, however, they dispute the contagion thesis. While they do not deny that drug users may facilitate the initial use of others, they contend that other factors must intervene as the more direct cause of harmful drug use. Finally, they take issue with the assumption that persons can be properly motivated for treatment by coercion. They contend that the person who is compelled to submit to treatment lacks the motivation which is essential for the successful treatment of drug dependence.

It is not essential to control that the offender be subjected to imprisonment or some other form of confinement. Control can be exercised over the offender in the community through a surveillance in the form of probation or parole. A system of control must, however, be backed up by an effective sanction for violation of the conditions of probation or parole, and the only effective sanction is deprivation of liberty in the form of imprisonment or some other confinement. Thus if we choose a system of control we must be prepared to use confinement whatever name we give it, and we must have the facilities and the will to make the threat of confinement real and credible. Otherwise the system will lack an effective sanction, and offenders will evade the control with impunity. If we seek to avoid the drawbacks of confinement as much as possible we must rely on individuals preferring a conditional and supervised liberty in the community to confinement and on a high proportion of them being able to comply with the conditions of such liberty in a sufficient degree to warrant leaving them in the community.

The feasibility and apparent success of such a system depend very much on the criteria of sufficient compliance and the severity or indulgence with which they are enforced. If one wishes to avoid a high rate of failure and the necessity of the repeated confinement of a large proportion of offenders one will adjust the criteria of compliance and their application to the realities of the situation. In the case of drug dependence, strict criteria strictly enforced will call for extensive use of confinement.

There have been varying systems of control and varying rates of success with them. In speaking of success we must keep clearly in mind the distinction between the various objectives of control: deterrence, isolation or quarantine, and treatment and rehabilitation. Deterrence is the principal object of punishment. Punishment is meant to persuade others that it does not pay to engage in the prohibited behaviour, and it is also meant to teach a similar lesson to the offender. Criminologists speak of general deterrence, which is the deterrence of others, and special deterrence, which is the deterrence of the offender. Short of capital punishment, deprivation of liberty is the most severe punishment we can impose. Deprivation of liberty not only serves the function of punishment but it protects others from being exposed to the offender. This is the function which we refer to as isolation or quarantine. It is often referred to as incapacitation. In the case of drug use, as we have said, it is advocated quite literally as a measure of quarantine on the ground that certain drug users are contagious or infectious. Deprivation of liberty is also seen as a means of submitting the offender to treatment with a view to rehabilitating him as a law-abiding citizen. In the case of the drug offender the emphasis is on curing his drug dependence or managing it in such a way that he is able to function reasonably effectively in a law-abiding way.

We have commented on the relative effectiveness of the criminal law as a deterrent in the field of non-medical drug use. For all of the reasons

mentioned in that discussion advocates of control will often concede that the criminal law is likely to be less effective as a deterrent against the drug user than against many other kinds of offender, but they will state that they are more concerned with isolation or quarantine. At the same time, if there is not a sufficient risk of apprehension and imprisonment to make the law an effective deterrent, then it can hardly be an effective measure of isolation and quarantine. To be an effective measure of quarantine the law must be able to assure the removal of a high proportion of offenders from contact with prospective users. It may be argued that the reason the law would appear to be a relatively ineffective deterrent in the case of drug use is not so much the small proportion liable to be detected as the very strong attraction of the prohibited behaviour, particularly in the case of dependence; and that while the threat of deprivation of liberty may be a relatively weak deterrent, the actual deprivation of liberty may be an effective measure of isolation or quarantine. Total numbers are nevertheless important where quarantine is concerned. If any substantial numbers escape the quarantine the spread of the disease will continue more or less unchecked. If the epidemic theory holds true then it is logically necessary to isolate a high proportion of the infected population if we want to check the spread of the disease and not merely to slow its rate of spread. Actually, there has not been a serious, thorough-going attempt in Western societies to check drug use by a system of quarantine. It is a policy which is still being advocated and debated.

Apart from the contagion theory, however, control is seen as an essential measure to take drug-dependent persons "off the street" and to reduce their drug-related crime, which in some large American urban centres has reached very serious proportions. Indeed, many consider this the most serious consequence of heroin dependence: the amount of property crime that heroin-dependent persons are obliged to commit to support their habit,¹⁷ and the amount of fear and general insecurity which is generated by their drug-related criminal activity, including an increasing amount of violence. In the measure that control reduces this crime it is deemed to serve a sufficient function to justify its use.

There are various models of control. There is regular imprisonment and special treatment programs in an institutional setting such as those conducted in the American federal hospitals at Lexington and Fort Worth and at the Matsqui Institution in Canada (see Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada*). There is the model offered by Part II of the *Narcotic Control Act* (which has never been put into force) of sentence to custody for treatment for an indeterminate period in a penal institution. (For discussion of these provisions see Appendix F.1 *The Constitutional Framework* and Appendix J *Probation for Heroin Dependents in Canada*.) Other models of institutional control are to be found in the civil commitment programs which exist at the federal and state levels in the United States. One of the most important of these—the California Civil Addict Program—is described in detail in Appendix L.

There are various provisions for compulsory treatment in other countries. An interesting model is that provided by the French law of December 31, 1970.¹⁸ This law, which makes the illicit use of narcotic drugs an offence, provides further that persons who could be charged with the offence may be ordered by the law enforcement authorities to submit to detoxification and to medical surveillance for a period judged to be necessary. These treatment measures are carried out under the jurisdiction of the public health authorities who are to work in close cooperation with the law enforcement officials. In the case of a first offender the authorities will not proceed with prosecution against a person who complies with the prescribed medical treatment for its full duration. In the case of subsequent offences it is in the discretion of the authorities whether to proceed. Compulsory treatment may also be ordered after conviction of illicit drug use, as an alternative to other penalties. Finally, the French law provides for voluntary submission to detoxification and medical surveillance under conditions which will permit the patient to maintain his anonymity. This provision is designed to encourage drug users to submit to voluntary treatment rather than to wait for an order from the law enforcement authorities. Compulsory treatment may also be ordered when a drug user is reported to the public health authorities by a doctor or social worker.

The basic model for civil commitment in Canada is the provision under provincial mental health statutes for the compulsory confinement of persons suffering from mental disorder. There is legislation providing for such commitment in every province. The ground for commitment in most cases is that the person suffers from mental disorder to such a degree that hospitalization is required for his own protection or welfare or the protection of others, or, as it is expressed in some provinces, in the interests of his own safety or that of others. Commitment is usually upon a doctor's certificate, although there is also provision in most provincial legislation for commitment by court order. Commitment may be renewed for successive periods by doctor's certificate. There is generally provision for independent review of the justification for commitment. In most provinces a person with drug-related problems must fall within the general definition of mental disorder to be eligible for commitment. In some cases the definition expressly includes dependence or addiction.¹⁹ Apart from the question of dependence, certain kinds of drug use may produce or be accompanied by a mental condition included in the definition of mental disorder.

In 1971 there was a total of 18,573 admissions to psychiatric facilities in Canada with a diagnosis of alcoholic psychosis or alcoholism, of which 2,909 involved involuntary commitment.²⁰ There were 2,179 admissions with a diagnosis of drug dependence (excluding alcohol) of which 420 involved involuntary commitment. The order of relative importance (along with the number of admissions) in the drug dependence categories was as follows: 1. amphetamine and related stimulants (383); 2. natural and synthetic opiate narcotics (239) ; 3. hallucinogens [excluding cannabis] (204) ; 4. barbiturates

(126); 5. other sedative-hypnotics and tranquilizers (84); 6. cannabis (28); and 7. cocaine (4). There was a large number of admissions classified as "other" (300) or for which the drugs involved were unspecified (811). (These data are discussed in more detail in Appendix A *The Drugs and Their Effects*.)

In some cases provincial legislation expressly provides for the compulsory treatment of alcoholism for periods ranging from ninety days to one year.²¹ In a few cases there is special legislation for the commitment of opiate-dependent persons, although it does not appear to have been used.²²

Other models of control are parole (see Appendix K *Parole of Heroin Dependents in Canada*), probation (see Appendix J *Probation for Heroin Dependents in Canada*), and conditional discharge (see Appendix F.8 *Sentencing*). These all involve supervision in the community rather than institutionalization.

There has been growing resort in the United States to court referral or "diversion" from the criminal justice system to treatment. A typical diversion program is the Court Referral Project of the Addiction Services Agency in the City of New York.²³ This project has developed partly out of the unwillingness of persons involved in the criminal justice system to resort to the commitment program of the Narcotic Addiction Control Commission. It has been estimated that only seven per cent of the addict population which is not incarcerated nor participating in other treatment programs is presently on civil commitment status in New York State. There are several reasons for this reluctance: the over-crowding of court facilities; and the negative attitude towards the civil commitment program of opiate dependents, legal aid lawyers (who represent more than 90 per cent of the defendants), and lawyers in the district attorneys' offices. A defendant, who may have only been charged with a misdemeanour, may request a jury trial on the issue of addiction, and the district attorney's office is often unwilling or unable to devote the necessary resources for such trials because of a backlog of felony charges and more serious cases. In such cases non-addiction is conceded and the defendant is sentenced to a correctional institution.

A common pre-trial disposition of misdemeanour cases involving opiate-dependent persons in New York City has been to adjourn the case and refer the opiate dependant to a private agency for treatment. The court discharges the defendant if he is still successful in the program after a year or so (during which time progress reports will have been received) or will have him returned to stand trial for the criminal charge if he is unsuccessful or absconds from the program.

The New York Court Project was established to formalize this diversion of opiate-dependent persons out of the criminal justice system into treatment. About two-thirds of the referrals are post-trial, where the convicted defendant goes into a treatment program on probation. If he is successful in the program (by the program's standards) he is not sent to jail. One-third

of the referrals occur before trial, and the charges are dropped against the defendant if he is successful.

The Project staff interviews the addict and tries to determine the treatment modality that will be most appropriate for him, thus eliminating the haphazard choice of a treatment program and hopefully increasing the chance of success. Between one-quarter and one-third of those interviewed are judged to be unready or ineligible for treatment and returned to the court. On very rare occasions (when an individual requests it, for example) an addict is referred to the commitment program of the Narcotic Addiction Control Commission.

The Project claims a rate of retention in treatment of between 65 and 70 per cent. As the quarterly report of the Project for the period April 1st to July 1st, 1972 notes, "It is absolutely necessary, for the success of such a venture, to obtain the cooperation of the Prosecutor and Defense Counsel, the Department of Correction, Department of Probation, the Court and, finally, the treatment programs." Opiate-dependent persons come to the attention of the Project primarily through two channels: direct referrals from defense counsel, judges, department of probation and defendants themselves; and, secondly, screening of pre-trial detainees going through detoxification in correctional institutions. The majority of the cases for referral are selected through the second of these processes. There are approximately 40,000 persons detoxified each year in the prison system in New York. It is estimated that about one-quarter of these are eligible for diversion into treatment programs.

The Court Referral Project began to place individuals in treatment in January 1972. No defendant is placed in a treatment program he does not wish to enter. Project staff visit the prisons to interview those prisoners who are awaiting trial and have indicated a wish to enter treatment. At the end of the first quarter of operation approximately 130 persons had been recommended for release from prison and placement in treatment programs. Of that number 45 had been rejected by the District Attorney or the court. Of the remaining 85 who were placed in treatment, approximately 60, or 70 per cent, were still participating at the end of this period and had "not gotten into further trouble". The court, the District Attorney and defense counsel are notified by the Project when a person leaves a treatment program. It is contemplated that a person will remain in treatment from six months to a year before final action is taken regarding the disposition of his criminal case.

A difficulty encountered by the Project has been the limited availability of treatment for the number of opiate-dependent persons in New York. There has been a particular difficulty in obtaining places in methadone programs.* By the end of the second quarter over 1,100 persons had been interviewed and approximately 300 referred to treatment. These are described

* Since the report on which this statement is based there has been a significant increase in the availability of places in treatment.

in the quarterly report of the Project as "young, hard-core addicts, who have been involved with the law on numerous occasions". Over 70 per cent of them claim to have been supporting their drug habit by crime. Approximately 50 per cent have been referred to drug-free programs, 40 per cent to methadone maintenance programs and the remainder to various other treatment programs, including in some cases the use of narcotic antagonists. At the end of the second quarter of operations, approximately 70 per cent of those released into treatment were still participating in the program.

Another model of control is the new approach adopted in recent years by several of the provinces towards the treatment of public drunkenness.²⁴ Where a police officer finds a person who appears to be intoxicated in a public place, he may, instead of charging him with the offence of public drunkenness, take him into custody for detoxification treatment. The police officer is given a statutory immunity from liability if he acts in good faith. The law may also provide immunity from liability to any physician or any hospital for the examination or treatment of the individual who is brought to a detoxification centre by a police officer. Generally, the law stipulates a maximum period, ranging from twenty-four to seventy-two hours, for which the individual may be detained. The law may provide for a longer period of detention upon application to a judge or magistrate for a confirming order.

Most of the provincial mental health acts which provide for civil commitment of persons suffering from mental disorder contain a similar provision giving power to police officers to take into custody and detain for medical examination any person whom they observe to be apparently suffering from mental disorder and acting in a disorderly or dangerous manner. This power exists for cases where it is not practicable to attempt to obtain the order of a judge or magistrate upon information under oath. A person apprehended and detained for examination in this manner may be committed upon the examining physician's certificate.

There has been considerable experience with deprivation of liberty as a means of facilitating treatment and rehabilitation, but on the whole the results have not been very encouraging. The experience with treatment in prison-like settings of confinement has definitely been unsatisfactory. This is borne out by the Canadian and American experience with treatment in penal institutions.²⁵ What they show is a very high rate of relapse and recidivism. It should be noted, however, that these treatment programs were committed to a goal of abstinence or cure. They were not experiments with the use of methadone maintenance as a means of managing opiate dependence. There is no reason to believe that their rate of failure with a drug-free goal is likely to be much higher than that of other abstinence programs. They do tend to emphasize two things, however: bringing addicts together in a long period of confinement tends to reinforce them in their commitment to drugs and a drug-using criminal subculture, and secondly, there must be long-term aftercare and follow-up to help the addict re-

structure his life, if there is to be any hope of success. According to Isbell the chief limitations of the American programs in the federal hospitals at Lexington and Fort Worth were a lack of control over voluntary patients,* a high proportion of whom left the program prematurely, and a lack of follow-up in the community.²⁶ The American civil commitment programs, particularly the California and federal programs, were designed to meet these requirements of control and follow-up. Their results have not been dramatically better than those in regular penal institutions, but again, at least until fairly recently, they have not permitted methadone maintenance. (See Appendix L *Civil Commitment in California*.)

In Matsqui Institution (see Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada*), a hospital-like complex established as a result of the recommendations of the Fauteux Report and conceived of as a forerunner of a system of treatment facilities which would permit the introduction of compulsory treatment under Part II of the *Narcotic Control Act*, a carefully controlled experiment was conducted to determine the success of a special form of therapeutic community treatment as compared to the regular treatment program in the institution. A comparison was not made with the results of imprisonment without treatment. In the result, those who were subjected to what might be called the "advanced" or "progressive" form of treatment with a less authoritarian and more participatory group therapy atmosphere and a greater emphasis on the upgrading of skills, turned out worse than those in the regular treatment program. They appear to have become more skilful in leading the life of a criminal addict. What the Matsqui experiment tends to emphasize is the role which prison, even with well-intentioned treatment efforts, can play in strengthening the criminal inclinations and capacities of offenders. It may also suggest that more authoritarian techniques are more effective with the criminal addict than more permissive ones.

One cannot deny all efficacy to these experiments with treatment in a prison setting. A case can be made for the contention that they effected a marginal improvement, and, of course, had the merit, while the offenders were in confinement, of keeping them out of drug-related crime and out of contact with law-abiding non-users.

Vaillant has also observed that a long-term follow-up of those released from the federal hospital at Lexington showed that a certain proportion—about two per cent—had become abstinent each year.²⁷ Whether this can be attributed in some measure to the treatment program which they received or to the phenomenon of "maturing out", or to other factors, is not clear.

In any event, there seems to be a general acknowledgement that imprisonment or other forms of confinement, whatever we choose to call them,

* The population in these hospitals consisted partly of prisoners and partly of voluntary patients.

do not increase the chances of successful outcome with an abstinence form of treatment. As a result, there has been a very definite movement away from confinement or inpatient status to outpatient or probationary status. This reflects the general trend of thinking in penology and mental health policy in favour of more rehabilitation or treatment in the community. In the drug field this trend has been particularly marked in the California civil commitment program (see Appendix L). There has been a steady tendency in recent years to reduce the period of time required to be spent in inpatient status, and to increase the relative proportion of time spent in the community. The initial mandatory period of six months confinement in inpatient status is no longer compulsory for everyone. The program now includes a "Direct Release" experiment in which a certain number are permitted to go directly from commitment to outpatient status on methadone maintenance.

In Canada, there has been limited experience with the use of probation and parole in the management of heroin dependence. (See Appendices J and K.) In particular, the potential of these forms of control, in association with methadone maintenance, has not been fully tested. The availability of methadone justifies further experiment with these forms of supervision in the community, particularly probation. There are special problems concerning parole arising from the effect of imprisonment on the heroin dependent and the implications of forfeiture and revocation of parole.

Certain problems have arisen in connection with the relationship between the law enforcement and treatment authorities. The first involves the decision as to who is to be accepted for treatment and the second the decision as to whether a person's probation or parole should be revoked for violation of the conditions of release. The courts may be increasingly prepared to place drug-dependent offenders in a probationary status on treatment rather than sentence them to imprisonment or release them into the community again without any attempt at treatment. On the other hand, the treatment agencies point out that not all drug users are suitable for certain kinds of treatment, and that the treatment authorities must have the final word as to who is to be accepted. The law enforcement authorities are interested in effective control—in removing the drug-dependent person from the illicit market and from drug-related crime; the treatment agencies are interested in successful treatment, or at least treatment with a reasonable chance of success. There is often a tension or conflict between these two concerns—control and effective treatment. A court may wish to place a convicted offender on probation on condition that he report to a certain agency for treatment, but the agency may not wish to accept him because they do not consider him a good prospect for treatment or, for example, they consider it premature to place him on methadone maintenance.

This kind of problem can be largely resolved by proper consultation between lawyers, judge, probation officer and treatment agency *before* the decision is taken to place an offender on probation on condition that he submit to treatment. But it is well to face the fact that so long as the control

and treatment concerns are handled by essentially independent and separate agencies the perspectives which each will bring to the problem will often be in some conflict.

Another kind of problem that arises in the relations between the law enforcement and correctional authorities, on the one hand, and treatment agencies, on the other, is conflict over responsibility for enforcement of the conditions of probation or parole. In order for control to be effective—that is, to keep the offender out of the illicit market and drug-related crime as well as association with drug users and influence upon prospective users—it is necessary that the conditions of probation or parole be strictly enforced. If they are not strictly enforced and the offender knows there is really no sanction for violation, he will tend to revert to all the conduct which the control is intended to prevent. Those who are concerned primarily with control tend to emphasize strict enforcement of the conditions of probation or parole, although they themselves also develop some realism about what it is reasonable to expect in the way of substantial compliance if the system is to work at all. The role expected of the treatment agency in relation to enforcement is to establish by regular or spot urine tests whether the patient is abstaining from the use of prohibited drugs and otherwise complying with the conditions of the treatment program. The problem arises when the treatment agency is called on to furnish evidence of violation of the conditions of probation or parole. Persons engaged in treatment do not feel that this function is compatible with the relationship of trust which they must establish with the patient. Moreover, they are concerned with trying to help the patient and do not like to be involved in inflicting the harm of incarceration. Treatment agencies must, of course, establish some standards of compliance and must be prepared to drop hopeless cases from their programs. But it is one thing to drop a patient from treatment; it is another thing to send him to prison. Persons engaged in treatment find this possibility distasteful and to some extent in conflict with their commitment to heal, and those responsible for enforcement of the conditions of probation or parole sometimes complain of a lack of cooperation from treatment agencies in establishing the necessary proof of violation. Again, this problem could probably only be completely resolved by having the correctional and treatment responsibilities, or at least the control and monitoring functions, under a single authority. For a recent development giving police the power to require probationers to submit to urinalysis, see Appendix J *Probation for Heroin Dependents in Canada*.

There have been proposals from time to time for the complete isolation of heroin addicts in therapeutic colonies. Nils Bejeröt, the Swedish drug expert who has been a vigorous exponent of the contagion or epidemic theory of drug dependence, has advocated this form of isolation or quarantine.²⁸ Similar suggestions have been made from time to time in North America. Several of the police officers who testified before the Special Senate Committee on the Traffic in Narcotic Drugs in Canada in 1955 made a

recommendation along these lines. For example, Commissioner Nicholson of the R.C.M. Police said: "I therefore feel—and I think this view is held by many if not most other police officials—that the only hope for the possible rehabilitation of these addicts and for the eradication of the drug traffic is that they be compulsorily isolated or quarantined."²⁹ When introducing the *Narcotic Control Act* in 1961, the Minister of Justice of Canada referred to these suggestions but rejected the notion of life-time confinement on the ground that it would destroy all hope and motivation.³⁰ At the same time, Part II of the Act seemed to adopt the principle of isolation or quarantine by providing for indefinite confinement for treatment. The distinction stressed by the Minister of Justice was that under these provisions the inmate could be released on parole as soon as he had made sufficient progress in rehabilitation. But presumably most proposals for isolation or quarantine contemplate the release of the drug-dependent person when it is considered safe. The isolation or quarantine is not seen as a life-time punishment for having once become drug dependent, but as a measure of protection of others.

Opiate dependents are still imprisoned, and to this extent, subjected to a degree of isolation or quarantine for limited periods. But the use of imprisonment for the simple possession of opiates has declined somewhat in recent years, and sentences tend to be for shorter periods than in the past. The actual time spent in prison, at least initially, is also frequently shortened by parole, although in the end the high rate of revocation or forfeiture of parole and the consequence thereof may have the effect of actually increasing the total period of imprisonment. (See Appendix K *Parole of Heroin Dependents in Canada*.) Moreover, only a comparatively small proportion of the estimated opiate-dependent population is convicted and sentenced to prison each year. As indicated above, little more than 10 per cent of this population are in penal institutions in Canada at any one time. Thus the present control system does not perform an effective function of isolation or quarantine. One thing is clear, that a policy of isolation or quarantine for the present population of opiate dependents, if it were to be considered acceptable on other grounds, would require much greater resources of law enforcement personnel and custodial and treatment facilities than are currently available.

With respect to the relationship between control and treatment, the essential question is how far effective treatment is promoted or impeded by the exercise of some degree of control or coercion. There have been no satisfactory studies of the effect of control upon the treatment of drug dependence. It has been observed that there has been a high rate of premature withdrawal from voluntary treatment programs. As previously stated, this was the experience with voluntary patients at Lexington, and it has been the experience in other jurisdictions, such as New York, where voluntary programs have been tried. However, in most of these cases treatment was being carried out in an institutional setting. As we noted above, the lack of some means of keeping voluntary patients in treatment for a reasonable period of

time was felt to be a serious weakness of the Lexington program. It is no doubt to meet this objection that modern civil commitment programs quite often provide that a person who voluntarily has himself committed is obliged to remain in the program for a certain minimum period. The decision to apply for commitment is voluntary, but once the commitment is ordered it becomes compulsory. The maximum period for voluntary patients is generally shorter, however, than the maximum period for involuntary patients, and this difference is intended to encourage voluntary commitment. The control in this case is exercised not to compel the patient to accept treatment, at least initially, but to remain with it for a certain minimum period of time.

There is good reason to believe that control can have an important bearing on the ability to retain drug-dependent persons in a treatment program. This is an important issue of motivation, although it is not the only one. It is important that patients be willing to give treatment an opportunity, and it is also important that they be willing to cooperate with it while it is going on. There is the willingness to spend the required time in treatment to give it a reasonable chance of success, and there is also the determination to respond to treatment in an effort to make it as effective as possible. The two do not necessarily go together. A person may be coerced into spending the necessary time in a program, but he may not have the necessary will to respond or cooperate. Or his response may be perfunctory or feigned in order to obtain the favours that flow from compliance with the program. The effect of control or coercion on this second, and essential, aspect of motivation is not so clear. Everyone agrees that such motivation is essential if there is to be any chance of success. The question is whether control or coercion has a positive or negative effect upon it. There is no clear evidence either way, but there are divided opinions. The experience with treatment in prison settings is by no means conclusive. The high rate of failure in such cases may be attributed to the compulsory aspect, but it may also be attributed to the lack of an effective means of treatment. If we compare the rate of success claimed by certain therapeutic communities operating on a voluntary basis with the rate of success in prison settings we may be led to the conclusion that an essential difference must be one of motivation. But it may be a difference in motivation resulting from a difference in the two kinds of population. The therapeutic community attracts a type of person who is highly motivated to respond to that form of treatment. It is not acceptable to a high proportion of drug users. It has a high rate of initial drop-out. What remains is a group of people who are reasonably well adjusted to it as a form of treatment. The voluntary patients in a therapeutic community are self-selected. Prison receives a cross-section of drug-dependent persons who vary considerably in their capacity for response to a particular form of treatment. It may well be that it is not so much compelling a person to accept treatment of some kind that adversely affects motivation as poor selection of the form of treatment. The decision to accept *some* treatment

may be constructively reinforced by a degree of control or compulsion, but motivation to respond to treatment may be reinforced by allowing the patient to choose the form of treatment that seems to be most congenial to him. Those who favour some degree of control or compulsion in support of treatment express the opinion that most chronic drug users do not have much motivation to seek treatment. They need to be encouraged to do so. But once they have been helped by a little direction to make that essential decision to seek help, their motivation can be aroused and strengthened by involving them in the process of choosing and shaping their own treatment program. There is no doubt that little can be done with someone who refuses to cooperate, who sullenly refuses to be helped. But an initial use of compulsion in opening the door to treatment would not seem to rule out the subsequent possibility of arousing the necessary motivation to respond to the particular form of treatment chosen by the patient. Compulsory treatment does not mean the physical or psychological coercion of the patient on each occasion of treatment. It means making or compelling the original decision to undergo treatment.

CONCLUSIONS AND RECOMMENDATIONS WITH RESPECT TO CONTROL OF THE USER

THE OFFENCE OF SIMPLE POSSESSION

The offence of simple possession has not prevented an increase in the various forms of non-medical drug use to which it applies. There has obviously been a very marked increase in recent years in the non-medical use of heroin, other opiate narcotics, such as illicit methadone, and cocaine. The use of LSD appears to have levelled off, and perhaps even decreased in the last year or two, but there has been an increase in the use of other hallucinogens, such as MDA. There is also every reason to believe that the use of cannabis has continued to increase, although the rate of increase may have declined in the last year or so.

What we do not know—and can never determine—is to what extent, if any, the increase in these various forms of non-medical drug use would have been greater if there had not been an offence of simple possession. Nor can we say how far the apparent levelling off, or decrease, in the use of LSD should be attributed to the offence of simple possession. There is no way of determining the effect which the absence of an offence of simple possession may have had on other forms of non-medical drug use.

There has not been an offence of simple possession for the controlled drugs (the amphetamines and barbiturates) or for the drugs on Schedule F of the *Food and Drug Regulations*, including certain amphetamine-like drugs (e.g., Ritalin®), minor tranquilizers (e.g., Librium® and Valium®), sedative-hypnotics (e.g., Mandrax®) and hallucinogens (PCP and mescaline). Notwithstanding the absence of an offence of simple possession, there has been an

apparent levelling off, and possibly even a decrease in the total numbers involved in intravenous use of methamphetamine or 'speed'. On the other hand, there has been an apparent increase in the oral non-medical use of amphetamines obtained in an illicit market, and in the non-medical use, supplied from an illicit market of phenmetrazine (Preludin®), methaqualone (e.g., Mandrax®) and PCP. There has not been an offence of simple possession or use with respect to volatile solvents, except in one province, but their use for purposes of intoxication appears to have levelled off, and perhaps even declined, in recent years.

There is no obvious general conclusion to be drawn from these facts concerning the deterrent effect of an offence of simple possession. One might be led to conclude, however, that it has relatively little influence on the extent of use. The extent of use appears to be influenced more by other factors, chiefly availability, contact with users, and their opinions and perception of the risks or possible harm involved in a particular form of drug use. There are also changing fashions in non-medical drug use, as in other forms of behaviour. As we suggested in Section V *The Use of the Criminal Law Against Non-Medical Drug Use*, there is reason to believe that the deterrent effect of the criminal law with respect to the simple possession of drugs for non-medical use is much less than it is with most other offences. The main reason is the difficulty of detection and apprehension. There are relatively large numbers involved in the prohibited behaviour in relation to the available law enforcement resources, and there are special difficulties of detection arising from the fact that the behaviour can be carried out in private and there is seldom anyone to complain. These difficulties oblige the police to resort to special methods of enforcement which are regarded as distasteful by the general public: writs of assistance, use of force to break into premises and to recover evidence, undercover agents, informers, and encouragement of offences. These methods severely limit the extent to which the law can be applied in practice to large elements of the drug-using population. It is felt by some that by its mere existence the law exerts some moral influence and exercises a deterrent effect, apart from the actual risk of detection. We may assume that many are deterred from the prohibited conduct by the mere existence of the law, but by and large they do not appear to be the individuals about whom there is most reason for concern: those who are not deterred by the risks or dangers of heavy, chronic drug use. Those who are not deterred by the harmful consequences of such drug use are not likely to be deterred by the relatively slight risk of detection and apprehension, and even less by the moral stigma of the law. Moreover, there is a significant minority of the population who appear to consider the law against certain forms of non-medical drug use as lacking the moral authority which entitles it to respect.

The adverse effects, or costs, of enforcement of the offence of simple possession far outweigh the benefits which it yields. Because of the difficulties referred to above, the offence of simple possession is necessarily enforced in a haphazard manner. Its enforcement falls with great unevenness on the

population of drug users, and this gives rise to a well-founded sense of injustice. Society could not afford the manpower, much less the methods, required to enforce the offence of simple possession in anything like a systematic and thorough-going manner.

While it may be permissible in theory to use the criminal law to prevent a person from doing harm to himself, the moral authority of the offence of simple possession, and the support which it commands, is weakened by the fact that the extent of the harm caused to the user, to third persons and to society generally by certain kinds of drug use varies considerably. The offence of simple possession does not distinguish between different levels of use, and in its effects it often appears to be grossly out of proportion to the effect of the conduct against which it is directed. The consequences of criminal conviction are clearly out of proportion to the effect of an occasional or experimental use of most drugs.

Even if imprisonment is not imposed, criminal prosecution and conviction can have serious psychological effects, causing mental suffering to the offender and members of his family, and can have an adverse effect on his prospects for employment and other opportunities. The effect of the law has been mitigated to some extent by the provision for absolute and conditional discharge and for early pardon. But in cases of absolute and conditional discharge there is still a finding or plea of guilt and the stigma of a criminal record. Early pardon may remove the official record, but it cannot remove the *fact* of a finding of guilt or a conviction and the prejudicial uses to which it can be put in the future by persons who are able to obtain knowledge of it. There is no way in which the memory of a criminal prosecution and finding of guilt or a conviction can be erased. So long as such knowledge exists it may always be a basis for action detrimental to the individual.

The main cost of the use of the criminal law against non-medical drug use is that it falls with particular severity upon the young. A high proportion of the convictions for simple possession involve persons under twenty-one years of age, and the vast majority are under twenty-five. This is particularly true of cannabis, but it is also true of the restricted drugs and to some extent of the opiate narcotics.

For all of these reasons we strongly recommend against any further extension of the offence of simple possession. We believe that we should gradually withdraw from the use of the criminal law against the non-medical user of drugs rather than extend its application. A policy to extend its application would be a policy of futility. There is virtually no limit to the number of drugs to which it would have to be applied if it were to be pursued to its logical conclusions. We would have to be prepared to apply it not only to the controlled drugs in Schedule G of the *Food and Drugs Act* but also to drugs with an abuse potential which are presently on Schedule F of the *Food and Drug Regulations*. As we have indicated above, several of these drugs have been the subject of an increasing non-medical use supplied by an

illicit market. The technical capacity exists to produce an infinite variety of drugs of abuse. This capacity is not the monopoly of a few responsible organizations but is widely accessible. Even if it were possible to suppress one drug there would be many others to take its place.

In the course of our inquiry many have urged that there be an offence of simple possession for the amphetamines, particularly for methamphetamine or 'speed'. This is a reflection of the concern for the dangerous effects of 'speed'. Law enforcement officials have urged that there be an offence of simple possession for the controlled drugs in general. They have stated that they are handicapped by the lack of such an offence in their enforcement of the laws against trafficking. While this opinion is entitled to great respect, there is no way of testing its validity. As we have indicated above, the use of 'speed' appears to have levelled off, and even decreased, in recent years despite the absence of an offence of simple possession. Convictions for trafficking offences involving 'speed' have steadily increased until they have approximated the total number of convictions for trafficking offences involving heroin. In 1971, they exceeded them, and in 1972, when there was a very marked increase in heroin convictions, they were about 85 per cent of the number. It is, of course, impossible to say whether the existence of an offence of simple possession for 'speed' would have made a significant difference to law enforcement against trafficking—at least, one which would have justified the cost of this extension of the criminal law. **Given the fact, however, that the total number using 'speed' appears to have stabilized, and possibly even declined, and given the apparent level of law enforcement against trafficking, we do not believe that there is any compelling reason for the creation of an offence of simple possession for this particular form of drug use. The total amount of 'speed' use is controlled by other factors: the poor opinion of it in the drug subculture, the perception of its potential for harm, and the self-limiting nature of the phenomenon. (See Appendix C *Extent and Patterns of Drug Use*.) Although the violence associated with the use of 'speed' is cited as a reason for creating an offence of simple possession, we are still of the opinion, expressed in our Interim Report, that because of the paranoia of the 'speed freak', such a step would lead to an increase in tension and violence between the police and the drug subculture.**

A decision was taken deliberately in 1961 not to create an offence of simple possession for the controlled drugs on the ground that in many cases the unauthorized possession of them would result from a member of a family obtaining access to a supply of drugs which another member had obtained on prescription.* This is still likely to be the case very often for both the controlled drugs and the drugs with stimulant or sedative-like action on Schedule F of the *Food and Drug Regulations*. The extensive use of many of these drugs by adults, the easy accessibility of others to them, and the often questionable nature of the distinction between their medical and non-

* *Debates*, House of Commons, Canada, May 30th, 1961, p. 5595; Hammond, "The Control of Barbiturates and Amphetamines," (1964) 15 U. of T.L.J. 443 at 445.

medical use would all contribute to a difficult and discriminatory application of an offence of simple possession. It is likely that the law would fall, as in the case of cannabis, on young people who happen to come into contact with the police. The likelihood of a discriminatory application of the law would be increased rather than diminished by the restrictions recently placed upon the medical use of the amphetamines and amphetamine-like drugs in Schedule G of the *Food and Drugs Act*. Because of the widespread desire of adults, including housewives, businessmen and athletes, to make use of these drugs for their stimulant effects, it is likely that there will be an illicit market in them. It is not likely, however, that enforcement of an offence of simple possession would reach large segments of the adult using population, any more than it has reached them in the case of cannabis.

While we are opposed to any *extension* of the offence of simple possession, we recognize that it may be necessary to take a somewhat different view of a proposed *elimination* of this offence in particular cases. This arises from the effect which such a proposed change in the law may have on attitudes and behaviour with respect to a particular form of non-medical drug use. There is clearly a difference in this respect between a proposal to extend the application of the criminal law and a proposal to reduce its application. The existing situation is not adversely affected by a refusal to extend its application, but it may be adversely affected by a change in the law which reduces its application. While the offence of simple possession may have relatively little effect as a deterrent of use, it undoubtedly has some, and what is more important, its elimination is likely to have some effect on the perception of harm. It is inevitable that many will infer from such a change that the potential for harm must not be as serious as was originally contended.

In each case, the issue must be decided, as we stated in our *Cannabis Report*, on an estimate of the balance of benefit and cost. We conceded at that time that the elimination of the offence of simple possession of cannabis would probably result in some increase in use and some effect on perception of harm, but having regard to the relative potential for harm of cannabis, the degree to which the law regarding it was at variance with the facts, and the costs of applying the criminal law to thousands of young people, we concluded on balance in favour of the elimination of the offence of simple possession of cannabis.

Despite our general misgivings about the offence of simple possession we do not believe that it would be prudent to remove it at this time with respect to the strong hallucinogens classified as "restricted drugs" in Schedule H of the *Food and Drugs Act*. While the use of these drugs is generally experimental or occasional, rather than regular, any use of them is potentially dangerous or hazardous. The effects of the strong hallucinogens are unpredictable, and adverse psychological reactions can arise from occasional as well as chronic use. There is impressive clinical evidence to suggest that

they can be a factor in precipitating mental illness or adverse personality change. The strong hallucinogens present an even greater danger of adverse effect on adolescent maturation than that about which we expressed concern in the *Cannabis Report*. There are also the hazards involved in the "echo effect" or "flashback", in which the effects of an hallucinogenic experience may recur under conditions which present a danger to the user or to others.

While the total number using LSD appears to have levelled off, and possibly even decreased somewhat, there is still a large population of youthful users, and there has been a marked increase in recent years in the use of MDA, a particularly dangerous hallucinogen with amphetamine-like properties. This drug appears to have resulted in several deaths from overdose. The potential for harm of the strong hallucinogens is much greater than that of cannabis.

The perception of this potential for harm is a factor which limits use. It would be unwise to make a change in the law that might seriously undermine this perception. Because of the perceived potential for harm of the restricted drugs, the present law with respect to them is not seen as being at variance with the facts to the same extent as the law regarding cannabis. The classification of cannabis with the opiate narcotics and the extreme nature of the maximum penalties involving cannabis have clearly called for some change in the law. For this reason we expressed the opinion in the *Cannabis Report* that substantial changes could be made in the law regarding cannabis in order to make it more rational without a seriously adverse effect on the caution with which cannabis should be treated. The same is not as true of the strong hallucinogens or "restricted drugs". The offence of simple possession for these drugs has only existed in Canada since August 1969, but, unlike the case of cannabis, it was deliberately introduced into the law after careful consideration of the apparent harm being caused by the strong hallucinogens and of the penalty structure that was appropriate for them. The penalty structure that was introduced for the restricted drugs was much less severe than that for cannabis, which was left with the same legal status as heroin. The maximum penalties for trafficking offences and for simple possession were much lower, there was not the mandatory minimum sentence of seven years' imprisonment for importing or exporting, and there was the option to proceed by way of indictment or summary conviction in cases of trafficking as well as simple possession. Thus any change in the law would likely be perceived as more closely related to a change in the perception of harm than to a grossly mistaken classification in the first instance, as in the case of cannabis.

At the same time, some reasonable balance must be struck between the need to retain the law in order to maintain the perception of harm, and the adverse effects inflicted by the law. For this reason we adhere to the opinion expressed in our Interim Report that there should not be liability to imprisonment for the simple possession of the restricted drugs. Having regard to the potential for harm of the restricted drugs, the age distribution of the majority

of users involved, and the serious effects of imprisonment on persons in this age group, we do not believe that the courts should have the power to impose imprisonment in such cases. We are strengthened in this opinion by the very wide disparity in the approach to sentencing that has been disclosed by our studies. (See Appendix F.8 *Sentencing*.) Liability to imprisonment increases the possibility of injustice arising from this disparity. We do not believe that imprisonment is justified for the simple possession of restricted drugs, even in cases in which there is a previous criminal record. This offence should be judged on its own merits and should not be invested with the seriousness which may carry over from other cases.

In the case of the drugs other than cannabis which are presently governed by the Narcotic Control Act, we believe that the offence of simple possession must be retained for reasons similar to those which apply to the restricted drugs — the effect of its removal on the perception of harm. We believe, moreover, that it is necessary to retain liability to imprisonment for the simple possession of this class of drug. This represents a change in the view we expressed in our *Interim Report* — that there should be no imprisonment for the simple possession of *any* psychotropic drug. We are led to this conclusion for a number of reasons. There has been a very marked increase in the extent of opiate dependence and experimental or occasional use of opiate narcotics since our *Interim Report*, and the whole perspective of the relative seriousness of this form of non-medical drug use has altered significantly in Canada. The removal of liability to imprisonment for the simple possession of these drugs would be completely at variance with the impression of the problem which their use presents at this time. Apart from its effect on the perception of harm, liability to fine is likely to be relatively ineffective as a measure of control for the opiate-dependent person whose compelling need of the drug already involves him in the necessity of finding large amounts of cash on a regular basis through drug-related crime. Finally, **we see the continuing use of the criminal law against the user of opiate narcotics as a necessary device of catchment and referral for treatment or management.**

As we have indicated in the preceding discussion, there is no doubt about the adverse effect of imprisonment on drug offenders in reinforcing their preoccupation with drug use and their attachment to a drug-using and criminal subculture. Prison may interrupt drug use, but it does not cure drug dependence in the vast majority of cases. At the same time, an effective control system for the management of drug dependence must be backed up by the threat of confinement of some kind for failure to comply with the program. **We believe that the courts should avoid the use of imprisonment as much as possible for opiate dependents, but that it must remain as a sanction for refusal to comply with the conditions of supervised release into the community. We recommend, however, that the maximum sentence to imprisonment for the simple possession of the opiate narcotics and cocaine be two years.** As we have indicated above, about 90% of the sentences to imprisonment presently fall within this range.

THE USE OF CONTROL FOR THE MANAGEMENT OF OPIATE DEPENDENCE

There should be greater use of probation (or conditional discharge) on condition of compliance with an approved treatment program. The existence of methadone maintenance makes it more reasonable to impose treatment as a condition of probation. The opiate-dependent person may pursue a goal of abstinence in a therapeutic community or other treatment program, if he wishes, but he has a viable alternative in methadone maintenance. The range of options is likely to be enlarged in the near future by the availability of a satisfactory opiate antagonist.

There is no doubt that if there is a serious attempt to use the criminal law process for purposes of diversion to treatment or management of opiate dependence, instead of incarceration or other relatively ineffective sanction, there will have to be not only an increase in treatment facilities of all kinds, including specialized methadone units and therapeutic communities, but a considerable increase in the number of probation officers and others capable of assisting with the task of social rehabilitation.

The form of treatment which is to be followed by the probationer should be determined by the court after consultation involving the probationer, the probation officer, treatment personnel, and any others, such as police or social workers, who may have useful advice to offer. The probationer should be made fully aware of the nature and implications of the proposed course of treatment. It is important that expectations be clearly defined. Much dissatisfaction is created in practice by a vague transfer of responsibility from the judicial authorities to treatment institutions, accompanied by unrealistic expectations. At the same time, there should be sufficient flexibility to permit changes in the treatment program when these are considered to be desirable by the treatment staff and the patient. In other words, an agreed program should be defined in advance, based on adequate determination of the probationer's preferences, as well as relevant expert advice, but it should be capable of being modified by the treatment institution with the patient's consent. Probably the probation officer should be given discretion to approve such changes.

The question arises as to whether there should be provision for a program of compulsory management of opiate dependence outside of the criminal law process. For reasons indicated in Appendix F.1 *The Constitutional Framework*, it is doubtful if the Parliament of Canada has legislative jurisdiction for such purposes. (There is further discussion of this issue in Appendix J *Probation for Heroin Dependents in Canada*.) The general assumption is that compulsory treatment not related to the criminal law process falls within provincial jurisdiction. If the criminal law system is to be used to direct or encourage opiate dependents to submit to treatment, then it seems reasonable that we should make the catchment system as effective as possible by providing for a non-criminal form of compulsory treatment or management. Opponents of compulsory treatment tend to exaggerate the extent to which the

opiate-dependent person is actually free from compulsion towards treatment. The difficulty of supporting his habit in the illicit market, and the danger of arrest and imprisonment are factors which, after a time, exert a compulsion to seek treatment. The heroin-dependent person who seeks methadone maintenance because he is tired of "hustling" in the illicit market is in effect being compelled to do so, whether he likes it or not. It is not the wholly free decision which some suggest is essential to a proper motivation for treatment.

While we do not see how, as a practical matter, we can withdraw at this time from the use of the criminal law against the user of opiate narcotics, we are not in favour of introducing long periods of civil commitment. We do not believe that the results obtained elsewhere with this approach justify the extended deprivation of liberty in cases in which there has not been a criminal conviction. We do believe, however, that there is a strong case to be made for the use of compulsory confinement for a short time to oblige the opiate dependent to confront his situation and to consider, in an atmosphere in which he is free from the pressures of "hustling" in the illicit market and has access to good diagnosis and advice, whether he desires to pursue one of the treatment or management options open to him.

We recommend that provincial legislation confer power on police officers to bring any person whom they have reasonable and probable grounds for believing to be dependent on opiate narcotics before a magistrate, in order that it may be determined, upon *prima facie* evidence, whether the person should be committed to custody for medical examination for a period up to seventy-two hours. If the person is found to be drug-dependent, the examining physician and another physician who confirms the diagnosis should have power to commit the person to a residential treatment facility for a period of not less than one month and not more than three months. The purpose of such confinement would be to permit further examination and observation of the drug-dependent person, to permit him to confront his situation and to consider the various treatment or management options open to him, and to afford an opportunity for a commencement of treatment including extended detoxification, the technique of the therapeutic community or stabilization on methadone maintenance. The chief purpose would be to acquaint the patient with the possibilities of treatment, to encourage him to decide in favour of some course of treatment, and to begin the treatment process. If, at the end of the stipulated period, the patient refuses to follow a course of treatment he should be discharged. The period of residential confinement would also afford an opportunity for advice and assistance with other problems having a bearing on the patient's drug use. The residential facility should have access to the necessary counselling personnel to assist with problems of social rehabilitation.

Such a policy would require sufficient residential capacity in close association with general hospital and methadone facilities. There should also be

provision during the stipulated period of residential confinement for temporary release into the community under specified conditions and supervision. Police officers should have power, upon order of the head of the residential facility, to return the patient to confinement for violation of the conditions of release. In no case, however, should the total period of confinement be longer than that originally stipulated by the committing physicians. Moreover, where the confinement fails to produce constructive results on a first attempt, in the form of a decision to pursue treatment, the authorities would be well advised not to attempt it again, although this possibility should remain open. If a drug-dependent person fails to respond to this non-criminal law attempt to force him to confront his situation and elect treatment, then it would be better to leave further attempts at control to the criminal law system.

For the present, we would confine this experiment to cases of opiate dependence.* Since methadone maintenance offers the opiate-dependent person a viable option if he cannot accept treatment with a drug-free goal, there is some justification in a limited use of compulsion to encourage acceptance of treatment. In certain other forms of drug dependence, such as dependence on the intravenous use of amphetamines, there are no such viable options at the present time. Where there is no clearly effective treatment, there is no justification for the use of compulsion to direct persons into treatment. Moreover, the restless and obstreperous nature of the average 'speed freak' would make him much less amenable to the short compulsory period of residential confinement to permit him to consider his position and the options available to him. The difficulties involved in attempting to apply such compulsion to the 'speed freak' would far outweigh any likely benefits.

The period of residential confinement should be presented to the opiate-dependent person as an opportunity for him to obtain good diagnosis of his drug-related problem, as well as advice and various forms of assistance, and to experiment with a serious attempt at treatment. Its purpose would be to precipitate the decision to withdraw for a period from involvement in the illicit market, to take stock, and to take a step in the direction of treatment and rehabilitation. **The goal would be to replace the initial compulsion as soon as possible by voluntary acceptance of and response to treatment.** The effectiveness of such an experiment would depend to a great extent on the manner in which it is administered by police officers acting in a public health role, and by the personnel involved in treatment and social rehabilitation. **While being obliged to confront his situation with the assistance of expert advice, the opiate-dependent person should be encouraged to involve himself in the decision process. Ultimately the choice of whether to pursue the particular course of treatment must be his. We would not be in favour of compelling acceptance of a particular course of treatment or management, such**

* It could, however, also be applied to cases of alcoholism, although as indicated earlier there is presently provision in some of the provinces for the exercise of a non-criminal law form of control in such cases.

as methadone maintenance or the administration of an opiate antagonist,* although we recognize that once compulsion is used the options available to the opiate-dependent person may necessarily have this tendency in some cases. It must be noted, however, that this proposal contemplates a definite limit of three months to the use of compulsion. It thus could not have the effect of an indefinite compulsion to accept a certain course of treatment.

If the experiment proved useful it could be applied to other forms of drug dependence, if, and when, viable treatment or management options are developed for them.

We recognize that this proposal for a limited period of compulsory residential confinement raises a serious question as to how and where the necessary facilities are to be provided. It would undoubtedly have to begin on a pilot project basis. The minimum security requirements would probably make it difficult or impracticable to establish these residential facilities under the supervision of specialized treatment units or general hospitals. At the same time, they would have to be sited in close proximity to the necessary services for treatment and social rehabilitation. The residential centres would require some permanent staff for diagnosis, counselling, and custody, with others associated on a non-resident basis. The power of original commitment should be restricted to physicians associated with diagnostic and treatment facilities properly equipped to confirm opiate dependence and to make an adequate evaluation of the patient's general condition and suitability for treatment. The residential facility would be a place where the opiate-dependent person would be accommodated and would receive counselling and various forms of vocational and recreational therapy, but he would also have access to nearby treatment facilities, such as a general hospital for acute problems of medical management, and to methadone maintenance if he elects to pursue that course of treatment. The decision to enter a therapeutic community would have to be a wholly voluntary one, after the patient had had an opportunity to consider its implications, and it would involve a transfer from one residential facility to another. Such transfer, prior to the expiry of the period of compulsory confinement, would have to be approved by the physicians who ordered the commitment.

We do not recommend the use of compulsion in non-criminal cases for purposes of education or indoctrination of persons engaged in the occasional use of drugs for non-medical purposes, particularly where the drugs do not have a significant dependence-producing potential. We would see no point, for example, in the use of a non-criminal form of compulsion for such purposes in the case of the occasional use of hallucinogens or the volatile solvents. We would very much doubt the efficacy of any such efforts. For such cases, informational and educational efforts are better left on a voluntary basis.

* The chief reason in the case of methadone maintenance is the seriousness of the decision to continue and confirm a form of opiate dependence, and in the case of an antagonist, the risk that such treatment may interfere, in an emergency, with the use of an opiate narcotic for the relief of pain.

WHETHER THERE SHOULD BE AN OFFENCE OF USE

Because of the seriousness of the heroin problem in Canada the question is raised as to how law enforcement against the use of opiate narcotics can be made more effective. There is particular concern about how the police can be more effective in the apprehension and conviction of the experimental or occasional user of opiate narcotics who is considered by many to be more "contagious" than the person who has become dependent, because of his belief that he can experiment with opiate narcotics with impunity. It has been suggested that the police are seriously handicapped by the present offence of simple possession, and that they could be much more effective if there was an offence of use, backed up by the power to compel urinalysis as the means of proof.

Most countries rely on the offence of simple possession although there are several in which there is also an offence of use. American federal law uses the offence of simple possession as does the Canadian, but use is an offence under the laws of several of the states. Despite the decision of the Supreme Court of the United States in *Robinson v. California*,³¹ holding it to be unconstitutional to make addiction a crime, several states have retained this offence and apparently convictions will be upheld if they are sought only for "use" or "being under the influence" of a drug. The *Uniform Controlled Substances Act* drafted by the United States National Conference of Commissioners on Uniform State Laws relies, however, on an offence of simple possession, punishable as a misdemeanour. In most cases the maximum penalties for the offence of use under state legislation are lower than those for possession. In many cases, however, a distinction is not made, in respect of maximum penalties, between simple possession for use and possession for purposes of sale, which would account for a difference in the maximum penalties for use and possession. The maximum penalties for the offence of addiction or use range from 30 days to six years, but in most cases they are one year or less. We are informed that in practice the offence of use plays a relatively minor role, being resorted to mostly in cases where small quantities of the prohibited drug are involved. In Europe most countries appear to rely on the offence of possession to reach the user, but several countries punish use as well.³² In New Zealand use is an offence as well as possession.³³

In Canadian legislative history the only offence of use with respect to narcotics was the offence of smoking opium which was introduced by the *Opium and Drug Act* in 1911.³⁴ The act created an offence of simple possession, which was punishable by imprisonment for not more than one year or a fine of not more than \$500, or both, as well as an offence of smoking opium, which was punishable by imprisonment for not more than three months or a fine of not more than \$50, or both. There is an offence to smoke or otherwise use prepared opium in the *Misuse of Drugs Act 1971* of the United Kingdom which is subject to the same penalties as simple possession.

A current example of an offence of use in federal legislation is the prohibition, in the *Tobacco Restraint Act*,³⁵ against smoking in public by persons under the age of sixteen years. There is also an offence of possession under this statute. Reference has also been made earlier to the prohibition under Alberta law of the use of volatile solvents for purposes of intoxication.

The reason for reliance on an offence of simple possession is that the prosecution must prove the nature of the drug involved, and generally it is necessary to have possession of a specimen of the drug for such purpose. The police have occasionally complained that they are handicapped by the need to obtain a specimen of the prohibited drug. They must surprise heroin addicts in the act of possession and sometimes must use force to prevent them from swallowing the evidence or otherwise disposing of it. What they have generally suggested as an alternative, however, is really an offence of addiction, for which the courts could impose confinement for an indeterminate period. There was testimony to this effect before the Special Senate Committee of 1955.³⁶ To some extent this suggestion was reflected in Part II of the *Narcotic Control Act* (which has never been put into force), although the provisions of Part II would require a conviction for an offence under the *Narcotic Control Act* before addiction could be made the basis of a "sentence" to custody for treatment for an indeterminate period. There are serious doubts as to whether the Parliament of Canada has the legislative jurisdiction to make addiction an offence. (See the discussion in Appendix F.1 *The Constitutional Framework*.) In making addiction an offence, Parliament would be basing itself on a medical condition without any necessary reference to criminal conduct. If Parliament acted purely on the basis of a medical condition, such as addiction, without specific reference to prior or prospective criminality, it would probably be held to be acting unconstitutionally. In effect, it would have to be considered to be punishing the offender, not for the medical condition as such, for which it would be wholly inappropriate to hold him criminally responsible, but for the previous acts of use which gave rise to it. While technically there appear to be few limits to the kinds of conduct which Parliament can validly declare to be criminal, so long as it is clearly not making a "colourable" or disguised use of the criminal law power to usurp an area of provincial jurisdiction, legislative propriety would argue strongly against making addiction a crime.³⁷ Whether or not our courts would apply the prohibition against cruel and unusual punishment in the Canadian Bill of Rights in the same manner as the Supreme Court of the United States did in *Robinson v. California*, the logic of such a challenge would remain to rebuke the propriety of the legislation as a matter of policy.

There would not appear to be any objection in principle to adding an offence of use as an *alternative*³⁸ to the offence of simple possession. But with an offence of use it would still be necessary to prove the nature of the drug that had been used, and as a general rule this would require possession and analysis of a sample of the drug. This problem could only be overcome by the compulsory administration of a satisfactory test for the presence of

the drug in the body. Urinalysis, as a test for determining the use of heroin by the presence of morphine in the human body, is by no means foolproof. Thin layer chromatography, the method most commonly used, is subject to error, including false positives as well as failure to detect. Further, it is typically only able to detect the presence of morphine in the body if the use of heroin has occurred within the previous 24 hours or so. Recently developed immunoassay techniques are apparently less subject to the possibility of false positives and can detect the drug in the urine for a significantly longer period after use. At the present time, however, they are not able to efficiently distinguish between the use of codeine, morphine and heroin, although it is believed that the simple identification of codeine by immunoassay will be possible in the near future. So long as there is a significant possibility of false positives, compulsory urinalysis must be ruled out as a sufficient basis for determining criminal liability.*

But even if we developed a foolproof method for identifying heroin in the body which could be made operational in a sufficiently practical form for law enforcement purposes, there would remain the problem of detecting the experimental or occasional user. The existence of compulsory urinalysis would not by itself make this task any easier. And detection would have to take place within a certain limited period after use. The occasional user of heroin is not exposed to police surveillance and detection in the same manner as the impaired driver. It would require much more intensive law enforcement, involving many more police and a greater use of informers and other distasteful methods to increase the chances of detecting occasional use, which is not only infrequent and unpredictable, but as a general rule private. **We do not believe that the likely return in law enforcement effectiveness from an offence of use backed up by compulsory urinalysis would justify the creation of this additional means of interference with personal liberty and this additional risk of injustice. We are, therefore, opposed to the creation of an offence of use if it were made dependent on compulsory urinalysis. As we have indicated above, we are not in favour of extending the application of the criminal law against the user but rather of making an orderly withdrawal from it.**

* The use of urinalysis to monitor compliance with the conditions of probation or parole (see Appendix J *Probation for Heroin Dependents in Canada*) does not in our opinion present the same risks since there is opportunity for further tests to confirm a pattern of behaviour, and there is discretion to consider what action should be taken on the basis of positive urinalyses, in the light of all the other circumstances of the case. (As may be seen from the above appendix, it is not practicable for probation or parole officers, in the case of opiate dependence, to act on a single positive urinalysis.) There is an important difference in an initial finding of criminal responsibility and the question of whether a convicted offender should be permitted to remain in the community under supervision.

NOTES

1. Article 36, paragraph 1, reads as follows:
 1. Subject to its constitutional limitations, each Party shall adopt such measure as will ensure that the cultivation, production, manufacture, extraction, preparation, possession, offering, offering for sale, distribution, purchase, sale, delivery on any terms whatsoever, brokerage, dispatch, dispatch in transit, transport, importation and exportation of drugs contrary to the provisions of this Convention, and any other action which in the opinion of such Party may be contrary to the provisions of this Convention, shall be punishable offences when committed intentionally, and that serious offences shall be liable to adequate punishment particularly by imprisonment or other penalties of deprivation of liberty.
2. Article 7.
3. Article 5.
4. *Narcotic Control Regulations*, section 3(3).
5. Section 3(2).
6. *Criminal Code*, section 646(2).
7. Section 41(1).
8. R. Solomon, "The Enforcement of Drug Laws in Vancouver," Unpublished Commission Research Paper, 1971.
9. The figure of 450 opiate dependents on probation is based on information provided by Senior Probation Officers (following consultation with probation officers under their direction) in Canadian cities with a high concentration of opiate narcotic use. (This information is discussed in more detail in Appendix J *Probation for Heroin Dependents in Canada*.) Similarly, the figure of 100 opiate dependents on parole is based on information provided by National Parole Service District Representatives in those cities with a high concentration of narcotics use. (Appendix K *Parole of Heroin Dependents in Canada* contains a more detailed discussion of this information.) The Director of Medical Services in the Canadian Penitentiary Service maintains a file on "drug addicts" in federal penitentiaries which is kept current on a weekly basis. Information on the drug history of these inmates is obtained from members of the R.C.M. Police and from classification officers in the Penitentiary Service. The figure of 330 "drug addicts" in federal penitentiaries is based on an analysis of this file by a member of the Commission's staff on August 30, 1972. The figure of 670 opiate dependents in provincial correctional institutions is based on information provided by the Directors of provincial adult correctional services.
10. Under United States federal law the maximum penalty is one year imprisonment or a fine of \$5,000 or both, and on subsequent offences two years' imprisonment or a fine of \$10,000 or both. Conditional discharge may be granted on first offence, and if the offender is not over twenty-one years of age the record of the case may be expunged. (*Comprehensive Drug Abuse Prevention and Control Act of 1970*, sec. 404.) The maximum penalties under state laws for simple possession of opiate narcotics vary considerably.

The majority are within the range of five years or less but there are some states with maximum penalties of ten years (Alaska, Arizona, California, Indiana, Kansas, Oklahoma, Oregon, Virginia), fifteen years (Alabama, Colorado, Ohio, Rhode Island), and twenty years (Maine, Missouri), and in one case there is a maximum penalty of life (Texas). (Illinois also appears to have a maximum of life for simple possession of 30 gm or more of heroin.) Several states have mandatory minimum sentences of one year (Nebraska, Nevada, New Mexico, Vermont, Virginia, Kansas, Kentucky) or two years (Alabama, Alaska, Arizona, California, Colorado, Georgia, Indiana, Ohio, Oklahoma, Texas).

11. In the United Kingdom, under the *Misuse of Drugs Act 1971*, simple possession of an opiate narcotic is punishable as follows: on summary conviction by a maximum of 12 months' imprisonment or a fine of £400, or both, and on indictment, by a maximum of seven years' imprisonment or a fine in the discretion of the court, or both. Under the *Dangerous Drugs Acts 1965 and 1967*, which are to be replaced by the *Misuse of Drugs Act 1971*, no distinction is made in respect of maximum penalties between possession with intent to supply or traffic and simple possession for use. The maximum penalties for all offences, including possession, under the *Dangerous Drugs Acts 1965 and 1967*, are as follows: on indictment, a maximum of ten years' imprisonment or a fine of £1,000, or both, and on summary conviction, a maximum of twelve months' imprisonment or a fine of £250, or both.
12. In France, where the offence is illicit use rather than simple possession, the penalties are imprisonment from two months to one year or a fine of 500 to 5,000 francs, or both. In Belgium the maximum penalties for simple possession of opiate narcotics are three months to two years' imprisonment or a fine of 1,000 to 10,000 francs, or both. In the Netherlands the maximum penalties for all offences, including possession, are four years for wilful offences, and otherwise six months or a fine of 3,000 guilders. In Denmark, Norway, Sweden and Finland the maximum penalty for possession is imprisonment for two years. In West Germany possession is punishable by a maximum of three years.
13. In Australia governments have agreed to make simple possession of opiate narcotics punishable by a maximum of two years' imprisonment.
14. In New Zealand simple possession is punishable by a maximum of three months' imprisonment.
15. See note 9 above.
16. *The Public Health Act*, R.S.A. 1970, c. 294, s. 40.
17. The person who is obliged to engage in theft to support his habit must steal goods to the value of about three times the price of the drug since he is only able to realize about a third of their value on the illicit market. It is conservatively estimated that the opiate dependent in the United States steals an average of \$10,000 worth of goods per year. William H. McGlothlin et al., "Alternative Approaches to Opiate Addiction Control: Costs, Benefits and Potential," paper prepared for the U.S. Department of Justice, Bureau of Narcotics and Dangerous Drugs, mimeographed, February 1972. It may be reasonably assumed that a comparable amount is stolen by opiate dependents in Canada each year. In 1964 a parole officer in Vancouver estimated that the average daily consumption of drugs by an addict would cost about \$20,000 a year, and that the estimated addict population at that

time was probably involved in theft of goods of an order of \$120 million a year. (J. F. D. Selkirk [Parole Service Officer, Vancouver, British Columbia], "National Parole Board Experimental Release of Drug Addicts," *The Canadian Journal of Corrections*, January 1964, 6(1): 31.) A study in British Columbia a few years ago estimated that twenty-six per cent of an opiate dependent's time must be spent in illegal pursuits, resulting in an illegal income of \$2,693 per month. (B. C. Murphy, "Response Measures for Assessing the Effectiveness of Training Programs for Delinquent Addicts: A Preliminary Report on Validation," Matsqui, B.C., Canadian Penitentiary Service [mimeographed, n.d.].)

18. Loi n° 70-1320 du 31 décembre 1970 relative aux mesures sanitaires de lutte contre la toxicomanie et à la répression du trafic et de l'usage illicite des substances vénéneuses.
19. For example, the *Mental Health Act* of Manitoba, R.S.M. 1970, c. M110, s. 2(o).
20. Canada, Mental Health Section, Health and Welfare Division, Statistics Canada, May 1973.
21. See, for example, *The Liquor Control Act* of Ontario, R.S.O. 1970, c. 249, s. 90(4) and section 64A of the *Summary Convictions Act* of British Columbia, as enacted by 1968 Stat. B.C., c. 12 and amended by 1970 Stat. B.C., c. 46.
22. For example, *The Narcotic Drug Addicts Act* of Manitoba, R.S.M. 1970, c. N10.
23. The description of this project is based on reports by its director, Mr. Martin J. Mayer.
24. See, for example, *The Liquor Control Act* of Ontario, R.S.O. 1970, c. 249, s. 106a, as enacted by 1971 Stat. Ont., c. 88.
25. B. C. Murphy, *A Quantitative Test of the Effectiveness of an Experimental Treatment Program for Delinquent Opiate Addicts*, Department of the Solicitor General of Canada, Research Centre Report 4 (Ottawa: Information Canada, 1972); C. E. Beech & A. I. Gregersen, "Three Year Follow-Up Study—Drug Addiction Clinic, Mimico," *Canadian Journal of Corrections*, 1964, 6(2): 211–224; The Senate of Canada: Proceedings of the Special Committee on the Traffic in Narcotic Drugs in Canada, 1955, p. 382; J. C. Kramer, "The State Versus the Addict: Uncivil Commitment," *Boston University Law Review*, 1970, 50(1): 1–22; R. W. Wood, "Major Federal and State Narcotics Programs and Legislation," *Crime and Delinquency*, January 1970, 16: 36–56; G. E. Vaillant, "The Natural History of Narcotic Drug Addiction," *Seminars in Psychiatry*, November 1970, 2(4): 486–498; J. A. O'Donnell, "The Relapse Rate in Narcotic Addiction: A Critique of Follow-Up Studies," in *Narcotics*, D. Wilner & G. Kassebaum, eds., (New York: McGraw-Hill, 1965), pp. 226–246; B. J. Langenauer & C. L. Bowden, "A Follow-Up Study of Narcotics Addicts in the NARA Program," *American Journal of Psychiatry*, July 1971, 128(1): 73–78. See also Appendix J *Treatment of Opiate Dependents in Federal Penitentiaries in Canada* and Appendix L *Civil Commitment in California*.
26. The Senate of Canada: Proceedings of the Special Committee on the Traffic in Narcotic Drugs in Canada, 1955, p. 381.
27. G. E. Vaillant, "The Natural History of Narcotic Drug Addiction." *Seminars in Psychiatry*, 1970, 2(4): 486–489.

28. Nils Bejerot, *Addiction and Society* (Springfield, Illinois: C. C. Thomas, 1970), pp. 271 ff.
29. The Senate of Canada: Proceedings of the Special Committee on the Traffic in Narcotic Drugs in Canada, 1955, p. 31.
30. *Debates*, House of Commons, Canada, June 7th, 1961, p. 5984.
31. 370 U.S. 660 (1962).
32. As indicated earlier, French law prohibits illicit use. Use is also an offence under Norwegian law. In Belgium, use is an offence if carried out in the company of others.
33. *Narcotics Act 1965*, s. 6 provides: "Except pursuant to a licence under this Act, or as otherwise permitted by regulations made under this Act, no person shall procure, receive, store, or have in his possession, or consume, smoke, or otherwise use, any narcotic."
34. 1911 Stat. Can., c. 17.
35. R.S.C. 1970, c. T-9.
36. The Senate of Canada: Proceedings of the Special Committee on the Traffic in Narcotic Drugs in Canada, 1955, pp. 412-414.
37. For discussion of this possibility see testimony of the Honourable Paul Martin, then Minister of National Health and Welfare, and F. P. Varcoe, then Deputy Minister of Justice of Canada, in *The Senate of Canada: Proceedings of the Special Committee on the Traffic in Narcotic Drugs in Canada*, 1955, pp. 9-10 and 433-434.
38. When the smoking of opium was an offence under Canadian law it was held that an accused who was found smoking opium, as well as in possession of opium for his personal use, could be convicted and sentenced for both offences. *R. v. Yuen*, [1932] 3 D.L.R. 234, 57 C.C.C. 372. Such liability virtually amounts to double jeopardy. If there were an offence of use in addition to one of simple possession there should be legislative provision that an accused may be convicted of one, but not both offences, arising out of a single set of circumstances.

Part Three

Treatment and Rehabilitation

General Observations Concerning Treatment

We discussed the various approaches to treatment or management of the adverse effects of non-medical drug use in considerable detail in our *Treatment Report*. We do not propose in this report to go over all the ground that was covered in the previous report nor even to attempt to summarize what was said at that time. There are, however, certain matters that require further commentary because of their general importance for social policy, and in some cases because of developments that have taken place since the *Treatment Report*. It is also necessary in this report to keep before us a realistic appreciation of the general outlook for the treatment of adverse drug effects, and in particular for the treatment of drug dependence. An understanding of what we may reasonably expect from treatment has an important bearing on the priorities which we assign to other kinds of intervention.

Some critics of the *Treatment Report* complained that we were too pessimistic about the outlook for treatment. It was certainly not our purpose to be unduly pessimistic or to underestimate the efficacy of various methods of treatment. It was our purpose, however, to avoid creating unjustified expectations for treatment. We believe that more harm can come from excessive optimism than from excessive pessimism in this area. The obvious danger of excessive optimism or exaggerated claims of success is that people may be misled into thinking that there is a means of repairing the damage if dependence or other serious chronic effects result from experimentation with certain drugs. There is reason to believe, for example, that there has been widespread misunderstanding that methadone maintenance is a "cure" for opiate dependence, when in fact it merely alters the form of such dependence. On the whole, we found the outlook for treatment, particularly of drug dependence, to be a discouraging one. We felt it essential that this fact be clearly presented so that people might appreciate the serious risk of long-term problems resulting from experimentation with dependence-producing drugs, and so that the importance of efforts at prevention should be placed in proper perspective. It was not our intention to disparage or discourage the efforts to

improve existing methods of treatment and to discover new and more effective ones. We must continue to give those who are engaged in treatment all the support they deserve, but at the same time we must have realistic expectations concerning success and reasonable criteria of progress in this most difficult field of activity that is so full of frustrations and disappointments. In the long run, such limited expectations and criteria of success will do more to encourage treatment personnel to persist with the task than the disillusionment and abandonment of constructive efforts that so often follows on unrealistic expectations and standards.

In appraising the general outlook for treatment a distinction must, of course, be made between the treatment of acute or short-term physical and mental effects, and the treatment of dependence. On the whole, available treatment methods are able to cope quite effectively with short-term effects, and with many of the consequences of chronic drug use. It is in the treatment of dependence that the major difficulty lies. The various approaches to the treatment or management of dependence include the following: efforts to achieve abstinence or "cure"; maintenance, which involves the continuation of a form of drug dependence; the use of antagonists or substances which block the action of a dependence-producing drug without themselves producing significant dependence; the use of substances which produce an adverse or unpleasant reaction when the dependence-producing drug is used; and, more recently, the possibility of active immunization against the dependence-producing properties of a drug.

It is generally acknowledged that the various approaches to achieving abstinence or cure have a disappointingly low rate of success. Some appear to be more successful than others, but the best can only reach a very small proportion of the drug-dependent population. Among the most successful has been Alcoholics Anonymous in assisting alcoholics to achieve abstinence. For one reason or another there has not yet been comparable success with the same approach in the treatment of opiate dependence. Former opiate-dependent persons have been employed to a considerable extent in treatment, but they do not appear to have been able to achieve success on anything like the scale of Alcoholics Anonymous. If anything, the short-term outlook for the cure of 'speed' or intravenous amphetamine dependence is even more discouraging than in the case of opiate dependence, although there are suggestions that very heavy 'speed' use may be a transient phase and some 'maturing out' may occur after a few years with most individuals. Efforts to promote abstinence in drug-dependent individuals by long periods of confinement in prison or hospital settings have yielded poor results in the long run. The effectiveness of individual psychotherapy in the treatment of drug dependence has not been adequately demonstrated, and in any event, it is prohibitively expensive, and there are not enough therapists for the task. Group therapy, and in particular the encounter technique of the rigorous therapeutic community, has had some encouraging results, but they affect only a comparatively small proportion of the drug-dependent population. However, because of the

relative importance of this form of treatment among those directed to abstinence or cure, we comment on it in greater detail in subsequent sections. There has not yet been a serious effort to achieve the potential of what is sometimes referred to as the "one-to-one" approach—the various forms of personal support and practical assistance given by a dedicated person to the drug-dependent person to help him or her to find a new basis for life. We shall have more to say about the importance of this approach in a later section.

Opiate maintenance, or the substitution of one dependence-producing drug for another, is discussed in detail in the following section. The increasing recognition that it holds out the best hope for management of opiate dependence is a reflection of the great difficulty of achieving abstinence or cure. Maintenance is generally not spoken of with respect to other forms of drug dependence, although there are undoubtedly many cases of persons who have become dependent on other drugs, such as the barbiturates, and are maintained on such drugs as a form of medical treatment. Maintenance would not appear to be practical as a means of managing amphetamine or 'speed' dependence because of the difficulty of stabilizing doses at levels which do not cause significant disruption of normal physical or mental function. Such maintenance was apparently tried at one time in Sweden, with disastrous results. Basically, maintenance involves the decision as to whether, on balance, there is sufficient benefit to be gained from it to justify the risks necessarily involved in making a dependence-producing drug legally available for the management of dependence.

Therapeutic techniques employing the use of antagonists in the treatment or management of opiate narcotic dependence have not yet been fully developed. There are various drawbacks to existing antagonists, often including unpleasant side effects and a short duration of action. More adequate antagonists are in various stages of development and testing. It is assumed that it will be possible to develop a satisfactory antagonist that can be given orally at intervals of several days, or implanted in the body and gradually released into the blood stream, providing opiate blockade over a long period of time. However, antagonists do not eliminate the craving for opiate narcotics in dependent users, nor do they deal effectively with the tension or depression from which many users seek relief. Consequently, even if satisfactory antagonists are made available for the management of dependence, they are likely to be willingly accepted by only a small proportion of the opiate-dependent population. As yet there are no generally adequate antagonists for the other major drugs of dependence, such as alcohol, barbiturates, amphetamines and tobacco, although significant research is currently being conducted in some of these areas. Antabuse® (disulfiram) does not block alcohol effects, but inhibits the use of alcohol by producing very unpleasant toxic interactions when the two drugs are taken simultaneously. Although Antabuse®, when administered chronically or implanted, reduces alcohol consumption, such

treatment is acceptable to only a very small proportion of the alcohol-dependent population.

In our *Treatment Report*, we recommended that research on the development of an effective antagonist for amphetamines be encouraged. The suggestion met with some unfavourable reaction on the ground that because of the likely mechanisms of action of amphetamine in the brain, and its similarity to natural body hormones such as adrenalin, an effective amphetamine antagonist would interfere significantly with the normal functioning of the nervous system. Although this may be a likely possibility, because of the present uncertainty as to the actual mechanisms by which amphetamine produces the effects which reinforce or reward its use in humans, we felt that the development of a satisfactory antagonist which might reduce amphetamine self-administration could not be ruled out *a priori*. Since our *Treatment Report*, significant advances have been made in this area. In Sweden, a compound is currently being investigated which significantly reduces the reinforcing effects of oral and intravenous amphetamine use. Available data, although limited, suggest no serious side effects or interference with normal physiological and psychological function. For further details, the reader is referred to Appendix A.3 *Amphetamines and Amphetamine-Like Drugs and Their Effects*.

There is a significant possibility of developing techniques for the active immunization of persons against the effects of various drugs. This would produce a drug-neutralizing effect similar to that of a chemical antagonist, although the effect would result from a different biological process. Employing antibodies originally developed for drug analysis (immunoassay), active immunization in animals has met with some success in reducing drug reaction, but it has not yet been tried in humans. There is the potential drawback, however, that such immunization might be irreversible. In the case of opiate narcotics, effective immunization (or long-acting chemical antagonists) would likely deprive the treated person of the medical use of opiate narcotics, as in the relief of severe pain. With amphetamine immunization, there could be complications arising from the similarity between amphetamine, adrenalin, and related hormones, as noted above.

Even if satisfactory techniques were developed for the neutralization or blockade of the major dependence-producing drugs, the overall impact of such treatment on multiple drug use might be disappointingly limited. The number of psychotropic drugs available is vast. Even within general pharmacological classes, there is often significant variability in chemical structure and in the mechanisms of action of different drugs. Specific antagonists would not be uniformly effective against all drugs. Consequently, the elimination of the use of one substance might do little more than change the form of dependence or the drug used. Taking the antagonist approach to an extreme, multi-drug use would ultimately require multi-antagonist treatment, which would be clearly impractical. Consequently, it is likely that antagonist treat-

ment will be of limited value, except to certain persons seeking this type of assistance.

A significant change in non-medical drug use which may be included in a broad concept of "treatment" is elimination or reduction of use brought about by recourse to various forms of self-control, inspiration, meditation and involvement in other interests. These were discussed to some extent in our *Treatment Report*, in the Appendix entitled *Some Other Therapeutic Approaches*. These approaches, although often strikingly effective in individual cases, depend so much on particular circumstances, including the personality of the subject and the other persons from whom he derives assistance, that it is difficult to generalize about their efficacy.

Certain pharmacological issues relevant to treatment are discussed further in Appendix A *The Drugs and Their Effects*.

In conclusion, a word should be said about treatment capacity, or the adequacy of existing facilities for treatment in Canada. In our *Treatment Report* we made recommendations for a community-based network of treatment and rehabilitation services, and in Appendix H *Treatment Capacity in the Provinces* we have attempted to convey some idea of existing facilities for methadone maintenance, treatment in therapeutic communities, and treatment in general and allied special hospitals. It is our overall impression that Canada still lacks sufficient treatment facilities of various kinds to meet the real and potential need of its drug-affected population. We have not made a detailed survey of facilities for the treatment of alcoholism, but there is reason to believe that they fall well below the need for such treatment. In several cases, reports suggest that existing treatment facilities are operating at under-capacity. This would appear to be true, for example, of some of the methadone programs and the residential therapeutic communities. In many of these cases, however, this is probably due to limitations of staff, or to failure to exert sufficient "out-reach" to make patients aware of available treatment and to attract them into it. Regardless of physical accommodation, the effective capacity of treatment programs is limited by the number of qualified staff. There is a need to attract many more persons into the treatment of drug-related conditions and to provide the necessary training for them. We have further occasion to discuss the need for increased government initiative and support in developing treatment facilities and attracting drug-dependent persons into treatment in subsequent sections.

Section IX

Opiate Maintenance

METHADONE MAINTENANCE

GROWING SUPPORT FOR METHADONE MAINTENANCE

Because of the difficulty of curing opiate dependence, there has been increasing support for methadone maintenance as the most effective means of managing such dependence. Methadone maintenance programs are multiplying at a brisk rate, and this treatment approach is receiving an increasing measure of official approval and support. In fact, it is fair to say that the substitution of methadone for heroin has become the favoured response to heroin dependence.

It seems to be undeniable that methadone maintenance is presently the means by which the largest number of heroin dependents can be removed, to a significant extent, from dependence on the illicit market in heroin and from involvement in drug-related crime. There is considerable variation in the results that are claimed for methadone maintenance on various measures of success—retention in the program, reduction in illicit drug use, reduction in crime, increase in gainful employment, and general social and personal adjustment. The retention rates of 80 per cent and better that are claimed for some programs are considerably higher than the general average. Moreover, retention rates reflect varying criteria of admission and compliance. Nevertheless, the poorest rates of success on any of the above measures in methadone programs, given the total numbers who can be beneficially affected, would appear to suggest that the total effectiveness of this method of managing opiate dependence is superior to other forms of treatment or management. As yet there has not been a basis for estimating the potential effectiveness of a satisfactory antagonist for opiate narcotics since such antagonists are still in the development and testing stage. (See Section VIII *General Observations Concerning Treatment* above and Appendix A.2 *Opiate Narcotics and Their Effects*, "Opiate Narcotic Antagonists".)

Some programs with a drug-free goal, particularly some of the therapeutic communities, do claim success rates which compare favourably to those

in methadone maintenance but they are suitable for a much smaller proportion of addicts, and the results are based on the performance of a highly selected population with a particularly good prognosis for this particular form of treatment.

Thus the superiority of methadone maintenance as a means of managing opiate dependence lies essentially in the numbers or proportion of the total addict population with which it can apparently deal. It must be recognized that there is a high rate of dropout from methadone programs (and indeed from virtually all other programs as well), in some cases as high as 50 per cent,¹ and also that there is a significant amount of illicit drug use and unemployment among those who remain in the programs, but the overall proportion of those who can be kept substantially out of the illicit heroin market and usefully employed is impressive. It is estimated that with adequate facilities at least 40 per cent of the heroin-dependent population in the United States could be stabilized on methadone maintenance.² On the other hand, it is felt that therapeutic communities could deal effectively with at the very most ten per cent of the total addict population.³

CONCERNS ABOUT METHADONE MAINTENANCE

While methadone maintenance has its strong supporters, and they are increasing in number, many people have serious misgivings about it and some are strongly opposed to it. The most vocal critics are those who favour a drug-free goal for treatment, in particular, those who favour the technique of the therapeutic community. They contend that it is essential to take the drug-dependent person off drugs altogether and not to encourage him in his reliance on them. They see methadone maintenance as simply catering to the desire of the drug user and evading a real solution of his problem.

There is also a very real concern that while methadone maintenance may result in a reduction of drug-related crime and some undermining of the illicit market in heroin, it may lead to an overall increase in opiate dependence. There is concern that we are creating a legal supply of a new opiate narcotic from which there will inevitably be diversion to an illicit market. There is also concern that because of the availability of methadone maintenance people will be more willing to run the risk of opiate dependence by experimenting with heroin or other opiate narcotics, and that once dependent they will be less inclined to make the effort to become abstinent. Many fear that methadone maintenance will not displace the use of illicit heroin but will merely add to or compound the overall problem of opiate dependence.

There is no doubt that the increasing availability of methadone for the treatment of opiate dependence in withdrawal therapy and maintenance has brought problems as well as benefits. There are four primary dangers in connection with the use of methadone. The first is the danger of making patients dependent on methadone when they do not yet have an opiate dependence. This can result from failure to make adequate tests for dependence. This

danger is greatest when a physician who administers or prescribes methadone does not have access to the necessary laboratory facilities for urinalysis. Successive daily urinalyses to determine whether heroin is being used daily is one, although by no means the only, indicator of heroin dependence. It cannot be said, however, that every reasonable precaution is being taken to avoid a mistaken diagnosis of dependence if urinalysis is not available. Persons who are not yet dependent on opiate narcotics may be made dependent on methadone as a result of unwillingness to turn them away when they present themselves for treatment. Sometimes the reasoning in such cases is that where a person is experimenting with heroin and there is every likelihood that he will become dependent it is better to remove him from the illicit market at the first opportunity rather than run the risk of losing him for a considerable period of time.

The second danger is the diversion of legal supplies of methadone to an illicit market. This danger is greatest where methadone is prescribed instead of being administered on the premises under supervision. There has been evidence of the creation of an illicit market in methadone and the creation of primary methadone dependence through over-prescribing by physicians in some areas. There is also concern that the extensive use of methadone maintenance will lead to an illicit market in methadone as a result of a growing demand for the drug and the refusal to make it legally available to those who are not yet dependent. The reasoning is that if heroin-dependent persons are willing to accept methadone in substitution for heroin, the drug can be expected to be increasingly sought after by drug users. In this way, it is said, making methadone maintenance widely available is likely to increase the total clientele for opiate narcotics and the total amount of opiate dependence. It is not only introducing another dependence-producing drug but it is making it legally available. Thus it is facilitating or encouraging the development of opiate dependence.

The third danger is that experimentation with heroin will be encouraged by the erroneous belief that methadone offers a 'cure' if heroin dependence results. There is concern as to whether drug users understand the full implications of methadone maintenance—that it not only produces dependence but a dependence that is confirmed and reinforced by regular daily administration. There is an insufficient understanding that methadone maintenance itself involves a dependence, albeit one which relieves the opiate dependent of the need to seek his drug in the illicit market. People who think of methadone maintenance as a 'cure' are very gravely mistaken. It is not a cure but a substitution of one dependence for another—a dependence which is as fully tenacious as that of heroin and perhaps more.

The fourth danger is that a heavy reliance on methadone maintenance will discourage treatment personnel and patients from pursuing the more difficult goal of abstinence or additional goals, like the ones that are pursued and often attained through serious therapeutic efforts: a sense of responsibility, of commitment, of understanding of the self and its limitations and the

like. (It is noteworthy, however, that there is increasing evidence in American therapeutic communities of resort to methadone maintenance by a certain number of the staff and members, although it is not possible to estimate the effect of this development on the traditional goals and general effectiveness of the therapeutic community.) There is concern that if we commit ourselves unreservedly and overeagerly to this method of treatment we may gradually abandon our efforts to seek means of effecting cure. As official support concentrates on methadone maintenance, there may be less support available for the more expensive approaches to treatment with a drug-free goal. At a time when public health costs constitute a very large and increasing proportion of government budgets, one of the great attractions of methadone maintenance to governments is its relatively low cost.

There is also concern that we do not know enough about the long-term effects of methadone, although it is thought to be unlikely that they will turn out to be more harmful than those of heroin. There has also been relatively little attempt to determine the effect of methadone on psychomotor functions involved in driving or the handling of other machinery. At the present time we are allowing persons on methadone maintenance to drive automobiles, operate other potentially dangerous machinery, and perform other types of complex tasks without adequate assurance that this is a safe or reliable procedure. As well, there is little systematic information regarding the interaction of methadone with alcohol and other drugs used medically and non-medically. The possibility of enhanced behavioural or physiological toxicity is of particular concern.

THE COMMISSION'S POSITION ON METHADONE MAINTENANCE

In its *Treatment Report* the Commission expressed cautious support for the increased availability of methadone maintenance under suitable controls. It acknowledged the criticism of this form of treatment or management of opiate dependence, especially from those favouring the therapeutic community, as well as its essentially experimental nature, but concluded, "for better or for worse, methadone maintenance provides to date the cheapest and most effective weapon we have for dealing with large-scale heroin dependence," (p. 30). The controls recommended by the Commission, which are also referred to in the present report in Appendix G.1 *Methadone Control Program of the Government of Canada*, consisted essentially in the requirement that, as a general rule, methadone should be administered only by physicians affiliated with and acting under the general supervision of an accredited specialized clinic equipped with the necessary laboratory facilities and other ancillary services.

In view of continuing concern about methadone maintenance and the introduction of a control program by the Federal Government the Commission has reviewed its position since the *Treatment Report*.

Notwithstanding the concerns expressed above, methadone maintenance continues to win support. Its major claims, apart from relative cost, are that it can handle large numbers, and it can, in a significant degree, take them out of the illicit market and drug-related crime and permit them to function in a reasonably effective manner. These are the major social objectives in connection with heroin dependence today. In the large urban centres of the United States people are more concerned about the increase in crime as a result of heroin dependence than they are about the effect of dependence on the individual. If they cannot cure the dependence they at least desire to reduce drug-related crime. A certain proportion of persons on methadone maintenance may still commit crime because of a general pattern of criminal behaviour, but they have less reason to commit the crime required to support their opiate habit.

The danger that a heavy emphasis on methadone maintenance will discourage efforts to pursue treatment with a drug-free goal is only a matter of real concern to the extent that the latter treatment offers a significant chance of success. We must not abandon our efforts to effect cure but we must be realistic about the present prospects. The experience with treatment goals of abstinence has been very discouraging and justifies the generalization that heroin dependence is virtually incurable. There are very few documented cases of individuals who have remained abstinent after release from imprisonment or civil commitment. While the success rate claimed for therapeutic communities is often high, on closer examination the number who respond favourably are seen to be a very small proportion of those who originally make contact with such communities. A high proportion of those who make contact turn away when they realize what is involved. A further high proportion drop out, or 'split', after a short period in the community. The founder of Synanon himself expressed the opinion that only about one in ten of those who seek help from the community would be benefited by it.⁴ As noted previously in this section observers have estimated that therapeutic communities are not likely to be suitable for more than ten per cent of the opiate-dependent population.⁵ Certainly it is essential that a sufficient number of them be supported for those who can benefit from them. It is generally agreed, however, that they could not make a sufficient impact on the overall problem of opiate dependence to remove the need for some other form of management. Moreover, methadone maintenance can always be regarded as a stabilizing and transitional measure that enables a person to withdraw from the illicit market and drug-related crime and to fashion the elements of a reasonably normal life; it does not preclude the subsequent pursuit of cure, if the dependent person feels able to make the necessary effort. As noted above, methadone maintenance is in fact being used by members of therapeutic communities.

For these reasons—and despite the very real concerns expressed above—we see no alternative but to continue to make methadone maintenance available to as many opiate dependents as possible for whom it is appropriate.

It must, however, be surrounded by suitable controls to reduce the dangers referred to above as much as possible. In view of the introduction of the Federal Government's methadone control program since the publication of the Commission's *Treatment Report* it is necessary to re-examine the question of control.

Before dealing with this subject we wish to emphasize again that the potential of antagonists as a means of managing opiate dependence has not yet been developed, although there are promising indications, and the concentration in the foregoing discussion on methadone maintenance and the therapeutic community is not intended to suggest that in the long-term the options are necessarily confined to these two forms of treatment or management.

THE METHADONE CONTROL PROGRAM OF THE FEDERAL GOVERNMENT

The methadone control program introduced by the Federal Government in 1972 following the recommendations of a Special Joint Committee on Methadone established by the former Food and Drug Directorate of the Department of National Health and Welfare and the Canadian Medical Association, as well as the recommendations of this Commission in its *Treatment Report*, are described in detail in Appendix G.1 entitled *Methadone Control Program of the Government of Canada*. There reference is made to the abuses which gave rise to governmental concern, the recommendations of the Special Joint Committee, the recommendations of the Commission, the announcement of the proposed methadone control policy by the Minister of National Health and Welfare, the new *Narcotic Control Regulations* respecting the use of methadone, the policy guidelines developed by the Health Protection Branch of the Department of National Health and Welfare, the manner in which the new control policy has been implemented, the number of specialized treatment units approved, and the number of physicians, both affiliated with such units and unaffiliated, who were authorized as of November 1972, to use methadone in maintenance and withdrawal therapy or in withdrawal therapy only.

What emerges from a consideration of these developments is that the Federal Government has had to try to reconcile two objectives: the need to make methadone sufficiently available in Canada for the treatment of opiate dependence, and the need to surround it with sufficient control to reduce the dangers of abuse or misuse as much as possible—in particular, the danger that persons who are not yet dependent will be introduced to opiate dependence through methadone, the danger of diversion to an illicit market through "prescription shopping" or over-prescribing, and the danger that the opiate dependent's problem may be aggravated by inadequate administration and failure to monitor illicit drug use.

At the present time there is a conflict between the need to make methadone sufficiently available to meet the requirements of the opiate-dependent

population and the need to surround its availability with all reasonable controls. Although the idea of assuring effective controls and good medical practice in the use of methadone through a system of accredited clinics or specialized treatment units with which private physicians must be affiliated is a good one in theory, it has encountered certain practical difficulties. There has been a significant increase in the number of special treatment units suitable for accreditation but there are not yet enough to make such a system workable at the present time. (See Appendix G.1 *Methadone Control Program of the Government of Canada*.) There are not sufficient organized and fully-equipped methadone programs in Canada today to make it feasible to restrict the use of methadone to physicians who are able to establish an affiliation with an accredited treatment program. There are too many localities that would not be adequately served if that rule were enforced today. Nor apparently has it been considered practicable to restrict its use to physicians who have access to the necessary facilities for urinalysis nor to insist that methadone be administered under supervision and only prescribed in the most exceptional circumstances.

In effect, the Federal Government has had to abandon, at least temporarily, the idea of a control system based on accredited treatment units or programs and settle for a system which gives it a closer monitoring control over physicians. It is highly doubtful if the policy which has been implemented can meet the control objectives of a safe and effective use of methadone which were originally announced. An effective system of controls requires adequate laboratory facilities to confirm opiate dependence and to monitor the use of illicit drugs, administration under supervision as opposed to ordinary prescription, and the necessary resources for follow-up and evaluation. There is no particular magic in the notion of a specialized clinic or treatment unit; the necessary facilities can exist or be accessible to physicians outside of such a clinic or unit; but they will generally only be available within an organized program.

JURISDICTIONAL ISSUES

The Federal Government feels that it is under some constitutional restraint. (See Appendix F.1 *The Constitutional Framework* for a general discussion of the distribution of legislative jurisdiction with respect to non-medical drug use.) It clearly has the jurisdiction, in virtue of its criminal law power, to restrict the availability of harmful substances and to impose conditions upon their use, but it does not have a general jurisdiction to establish and regulate treatment facilities outside of the criminal law system and other specific areas of federal constitutional responsibility, such as the armed forces, immigration, and Indian affairs. As indicated in Appendix F.1, the general jurisdiction with respect to health services is provincial, and there is a serious doubt, for reasons of constitutional policy, whether the Federal Government could successfully invoke its general power under the "Peace, Order

and Good Government" clause as a basis for the delivery of treatment services in the field of non-medical drug use, even if it were politically prepared to do so. In the present constitutional climate of Canada, with the strong provincial insistence on jurisdiction with respect to matters of health and social welfare, it is unlikely that such an initiative would appear desirable or feasible. The provision of facilities for the treatment of opiate dependence and other adverse effects of non-medical drug use would involve an incursion of a comprehensive nature into the complex field of health and social welfare services. The proper treatment of heroin dependence involves much more than simply making drugs available. It involves a whole network of services, including institutions and professional personnel over which the provinces have regulatory jurisdiction.

The Federal Government could consider providing the necessary facilities to make methadone available under properly controlled conditions. Its right to impose various conditions upon the distribution of dangerous substances would appear to include the right to provide that such substances will not be available except through government owned or sponsored facilities. But there is a difference between mere distribution and treatment, which is what is involved in the use of methadone in maintenance or withdrawal therapy. The latter is not simply the distribution of a dangerous substance but the delivery of a health service.

Another important consideration in connection with a federal attempt to regulate the use of a drug by physicians is that while the Federal Government may validly impose conditions upon the use of a drug, the general jurisdiction to regulate the practice of medicine is provincial. In regulating the distribution of drugs by physicians the Federal Government does come very close at times to regulation of the practice of medicine. It is one thing, from a policy point of view, to say that a particular drug shall not be available for use by any physician, as in the case of thalidomide. It is another thing to say, as in the case of methadone, that only physicians specially authorized by the Federal Government shall have a right to use it. When the Federal Government imposes conditions upon a physician's right to use a certain drug, in the exercise of its jurisdiction to restrict the availability of harmful substances, it does not usurp the provincial jurisdiction to regulate the practice of medicine.⁶ But the control contemplated by the new federal methadone regulations involves a judgment on the professional competence and responsibility of individual physicians. Moreover, the federal approval of specialized treatment units and the authorization of physicians necessarily involve a consideration of the manner in which methadone is to be used as a matter of good medical practice. (The Guidelines referred to in Appendix G.1 contained clear suggestions in this regard.)

Nonetheless, once it is conceded, as it must be, that the Federal Government has jurisdiction to prescribe the conditions upon which a certain drug may be made available for use by physicians, there would seem to be no limit to the nature of the conditions that can be imposed so long as they are genu-

inely related to a concern with the availability and use of a dangerous substance and not to the assumption of a regulatory jurisdiction over a course of treatment in the interests of a certain theory of treatment efficacy.

Of course, there may be a close relationship in practice between the two concerns—protection of the patient from harm and treatment efficacy—and it may often be difficult, if not impossible, to draw the line between them. Clearly, a requirement that there be proof of opiate dependence before methadone is used relates to a *bona fide* concern for the harm that may be caused by a dangerous substance. On the other hand, a requirement that there be certain ancillary services for purposes of follow-up and social rehabilitation may appear to go beyond issues of safety into questions of treatment efficacy. Yet even such questions can be seen as part of a general concern to limit the use of methadone to the extent that is absolutely necessary. Thus there would not appear to be a serious basis for challenging federal jurisdiction to enter into details of treatment as conditions upon which a particular drug will be made available.

The decision to pass upon the qualifications of individual physicians to administer methadone could involve the Federal Government in some awkwardness with the medical profession and the provincial governing bodies. In fact, as indicated in Appendix G.1 *Methadone Control Program of the Government of Canada*, the Drug Advisory Bureau consults with relevant provincial bodies, the Methadone Advisory Committee is representative of the interests of the medical profession, and the Department had not, as of November 1972, refused any application for authorization, although some temporary authorizations were withdrawn during the summer of 1972 by agreement between the Bureau and physicians. The federal policy appears to be to encourage the adoption of satisfactory standards and practices but to refuse or withdraw the right to use methadone only in cases of clear abuse, and even then, the withdrawal of the right has been brought about by negotiation. This reflects the concern which the federal authorities feel about effective interference with the right to practice medicine, even as a necessary incident of their clear jurisdiction to control the availability of harmful substances. The monitoring of methadone prescription by the Bureau of Dangerous Drugs is only calculated to detect cases of extreme abuse. It cannot monitor good medical practice in the use of methadone. If there were to be a more confident and rigorous evaluation of professional competence or experience in the use of methadone, to meet generally accepted criteria of good medical practice in this area, it would have to be exercised by provincial authorities, or at least by some federal-provincial cooperative mechanism.

COMMENTARY ON THE FEDERAL CONTROL PROGRAM

As indicated in Appendix G.1, the federal methadone control program started out with a firm affirmation of and commitment to the requirement of

affiliation with a specialized treatment unit, but it has had to adjust, at least as an interim measure, to certain operational realities.

As we say above, there is no magic in a requirement of affiliation with an approved treatment unit or program. It is a means, however, of assuring good medical practice in the use of methadone since such practice cannot be assured simply by a review of prescription records. This was the thinking behind the Commission's recommendation of the requirement of affiliation in its *Treatment Report*, and presumably it was also the thinking behind the recommendations of the Special Joint Committee, which expressed the view that methadone therapy should only be carried out as a general rule within specialized treatment programs. (See Appendix G.1.) **Physicians who are not affiliated with such a program may be capable of good medical practice in the use of methadone, but in our opinion they are not adequately equipped for such purpose unless they have access to the necessary laboratory facilities to confirm dependence and monitor illicit drug use, and have the necessary training and specialized clinical experience and also probably, unless they have the support of the necessary ancillary services to supervise and assist the social rehabilitation of the patient.** Specialized programs may also lack these facilities but they are more likely to be able to provide for them. Such programs may also be guilty of poor medical practice in the use of methadone, but with their specialized personnel and facilities they should be less exposed to this possibility.

One thing that emerges very clearly from a consideration of our experience with treatment so far is the necessity of adequate after-care and follow-up to assist the patient to establish a new pattern of life. Methadone maintenance which consists simply of the daily dispensing of drugs may do some good but it is not sufficient. The individual must find satisfactory employment and establish new relationships. Proper treatment requires follow-up over a long period by people who care and who can devote the necessary effort to solving the practical problems involved in the restructuring of a life. Virtually all treatment today suffers from a lack of sufficient follow-up with the problems of social reintegration. There is a great need for enough trained personnel to assist in this task and for a receptive attitude on the part of society.

There is some contention that methadone maintenance will be effective even without ancillary services if the goal is simply to remove a person from dependence on the illicit market and drug-related crime, but help in putting together the elements of a stable life would seem to be essential to ensure against relapse into the life of the criminal addict through attraction of the old associations, if not the illicit drug, and also to lay the basis for the possibility of cure.

In addition to these ancillary services directed to social rehabilitation, there is also a need for a research and evaluation component in methadone programs. We are in need of further research information in numerous areas,

such as the determination of optimal doses, maintenance side effects (including changes in intellectual functioning and psychomotor skills), interactions with other drugs, and the treatment potential of longer-acting methadone derivatives. At least some of this research would best be conducted in a clinical setting, or in a clinically-associated experimental program. Facilities for adequate research and evaluation are most likely to be available to an organized and properly equipped clinical program.

Despite differences in opinion on the necessity or even the desirability of urinalysis to confirm dependence and to monitor illicit drug use, we are still firmly of the view that it is essential in order to minimize the risks of creating dependence where none yet exists and of aggravating opiate dependence by allowing methadone to be a convenient adjunct to heroin dependence. Once again, it appears to be clear that many physicians are unlikely to have immediate access to the necessary laboratory facilities unless they are affiliated with an accredited treatment program. Although the omission of a requirement of urinalysis by the Federal Government in the implementation of its program may have seemed justified on grounds of temporary practical necessity—that an insistence on it would severely reduce the availability of methadone maintenance at the present time—we do not think it can be justified as a permanent policy. It is noteworthy that the most experienced special programs in the country regard urinalysis as essential.

Furthermore, as noted in Appendix A.2 *Opiate Narcotics and Their Effects*, extremely simple techniques are available for the preliminary extraction of urine on ion-exchange paper, which obviates the need for immediate access to chemical analysis facilities. After the extraction (which requires only the most rudimentary personnel training and supplies) the dried paper can be taken or mailed to a central laboratory for routine urinalysis. The transportation of actual urine samples is totally unnecessary. If medical support staff were instructed in the application of this simple procedure, and appropriate central analytic services were provided (either on a provincial or federal basis), urinalysis would not present a significant practical problem for the individual clinician, regardless of his location and affiliations.

In many methadone maintenance programs in North America, patients are required to urinate while under direct observation. We do not feel that this humiliating practice is appropriate or necessary. Accurate urine temperature measures, taken immediately after urination in privacy, would likely detect any attempt by the patient to substitute another sample for his own, and such measures should be taken routinely.

To reduce the dangers of “prescription shopping” and diversion to an illicit market, as well as eliminating the opportunity for the patient to reduce or avoid the prescribed dose (e.g., to facilitate the effects of illicit heroin use), the administration of methadone should be under supervision.

For those cases where it is necessary because of distance or other compelling reason to provide the patient with a prescription, pharmacists should

be requested to directly supervise its administration on the premises. Where, in exceptional cases it is necessary to send a supply to a remote location, such as a logging camp, a responsible person in such location should be asked to directly supervise administration. There would undoubtedly be some practical problems to be solved before a decentralized pharmacy-based methadone administration system could be put into general operation. Some pharmacists might object to such a program, and may prefer not to be involved in routine supervision of methadone administration to heroin addicts in their stores. If daily urine samples were required of patients, as well as daily supervised drug administration, it would be greatly advantageous to have both functions performed at the same location. Consequently, in order for a pharmacy-based distribution system to be an improvement on the central clinic approach, it would also be necessary for the pharmacist to be responsible for obtaining urine samples on the premises. This added responsibility could conceivably lead to significant staff and space problems in certain pharmacies.

There are clear indications that the potential problems inherent in a pharmacy-based methadone administration and urine collection system are not insurmountable, and that solutions can often be facilitated at the local community level. Such a system has been in practice on a small scale in Edmonton for over a year. This program, involving six volunteer pharmacies, is no longer considered a temporary or experimental treatment component, but a regular part of the services available in that community. All patients must initially attend the central clinic routinely, but if sufficient progress is demonstrated, certain individuals are allowed the option of obtaining and consuming methadone under supervision at certain designated local pharmacies. In some instances, pharmacists take urine samples, as well. Other similar programs are in operation in the United States.

It would appear that generally where methadone is administered for maintenance rather than withdrawal therapy it should be administered at sufficiently high doses to block the effects of heroin; otherwise it may simply make it easier for the opiate dependent to maintain his habit in the illicit market by supplementing his supply of heroin and removing some of the pressure of "hustling". Erratic dose administration may aggravate a problem of opiate dependence by facilitating rather than eliminating the continued use of heroin. However, some flexibility should remain in the selection of dose at the clinical level, since we do not yet have adequate information for establishing the optimal dose to be employed. There is currently considerable controversy in this area, and further research is clearly needed. (See Appendix A.2 *Opiate Narcotics and Their Effects*, for a summary of methadone pharmacology.)

Longer acting derivatives of methadone, which extend the "coverage" to two days or more, are currently being developed and tested. Such compounds would significantly reduce the expense and inconvenience of super-

vised administration. However, certain problems remain to be solved, and it seems unlikely that methadone itself will be replaced in routine maintenance in the immediate future.

RESPONSIBILITY FOR ESTABLISHING THE NECESSARY TREATMENT CAPACITY

Since the introduction of the Federal Government's Methadone Control Program there has been a significant increase in the number of organized methadone treatment programs (see Appendix G.1 *Methadone Control Program of the Government of Canada*), but there does not appear to be sufficient capacity, with suitable controls, to meet the potential demand for such treatment in the country (see Appendix H *Treatment Capacity in the Provinces*).

It is impossible to determine from the records of the Drug Advisory Bureau whether there is sufficient capacity in the country as a whole to meet the real need for methadone maintenance. To do this it would be necessary to know the potential capacity of each approved treatment unit, as well as the capacity of authorized physicians, in relation to the estimated population of opiate dependents in their area. There are too many unknowns. Methadone programs in Canada do not maintain waiting lists as they do in the United States. They do not report the extent to which they are obliged to refuse applicants who meet their criteria for admission. It is a safe assumption, however, that the potential demand for methadone maintenance by qualified applicants exceeds by several times the number who are presently being treated in this way.

Apart from the question of capacity, however, we are obviously not yet beginning to approach the potential for the *use* of methadone maintenance in the management of opiate dependence. Opinions vary as to the proportion of the opiate dependent population that could be effectively treated with methadone maintenance. Some are considerably more optimistic than others. As indicated earlier in this Section a conservative estimate in the United States is that about 40 per cent of heroin dependents who are not incarcerated or in other forms of treatment could be persuaded to respond to methadone maintenance programs with reasonably strict controls.⁷ There appears to be a general consensus that methadone maintenance is likely to be acceptable to four or five times as many heroin dependents as therapeutic communities. It is estimated that at the end of 1971 in the United States there were 40,000 heroin dependents in methadone maintenance programs and 8,000 in therapeutic communities out of a total estimated population of 375,000 opiate dependents.⁸

In Canada, we estimate that there are less than 1,500 opiate dependents in methadone maintenance. The capacity of all programs is severely restricted by limitations of staff and financial resources. The two oldest and most experienced programs in the country, the Narcotic Addiction Foundation of

British Columbia and the Addiction Research Foundation in Ontario, accommodate between them not more than 500 regular patients on methadone maintenance.

We have an impression that there is not yet a firm, governmental commitment to development of the capacity required to meet the potential demand for methadone maintenance in Canada. This lack of initiative and support to some extent reflects the misgivings which are still felt by many treatment professionals concerning this form of opiate dependence management—misgivings which have been referred to above—but it would also appear to reflect concerns of a jurisdictional and financial nature.

The Federal Government takes the position that it cannot assume the initiative for the creation of treatment facilities; that this is a matter of provincial responsibility. It can, however, assume a good deal of initiative, in consultation with the provinces, to encourage the development of new facilities and to participate in the financing of them. The provinces, on the whole, appear somewhat apathetic about establishing the necessary facilities for the treatment of drug dependence. This can be explained in part by uncertainty as to whether there is any form of treatment worth supporting. It is no doubt also due in substantial measure to concern about the cost.

It might appear more prudent to take the view that we should still regard this form of treatment as in the experimental stage, but there is a real danger in the present lack of certainty and full-bodied commitment. We should always adopt an experimental approach to methadone maintenance (as to other forms of treatment), in the sense that it should be accompanied by research and evaluation, but there should be a firm commitment now to make it as fully available as possible under proper controls. There is no virtue in a half-hearted policy. Such a policy may rescue a small percentage of opiate dependents from the illicit market but it cannot have a significant impact on the overall problem. So long as we are administering methadone to hundreds of patients we have passed the experimental or tentative stage. There is no good reason not to go all the way. There are definite dangers in a policy of legal availability of opiate narcotics, but once embarked upon it we should do what is necessary to obtain the maximum advantage from it. We should create the capacity and the outreach that will draw as many heroin dependent persons into it as possible.

If methadone maintenance is to be made available under properly controlled conditions and at a reasonable cost to the addict it must receive the financial support of government. The provincial governments have the primary responsibility for assuring these conditions of availability, although they may well call on the Federal Government for assistance. But someone has to assume responsibility for seeing that there is a proper program wherever it is needed.

We believe that the necessary government initiative must be taken to make it possible for all physicians authorized to use methadone to be

affiliated with an organized program having the necessary specialized staff, laboratory equipment and ancillary services. We see grave risks in allowing the development of methadone maintenance through administration by private physicians without a control system based on affiliation with clinics that are adequately staffed and equipped. The experience of other countries, such as Great Britain and Sweden, is that if maintenance is left to private physicians there is a serious danger of abuses resulting in epidemic spread of use. We therefore strongly recommend that there be the necessary federal-provincial cooperation to establish the clinics or treatment units required to assure that methadone maintenance can be made available under properly controlled conditions to as many heroin addicts in Canada as possible. What is required is a national system of clinics or treatment units with a coordinated approach to monitoring and information exchange to prevent "prescription shopping" or "double doctoring".

Despite all efforts it may not be reasonably possible because of the widespread areas which must be served to require affiliation of all physicians, but at the very least the government should require evidence, as a condition of authorization, that a physician has made reasonable efforts to establish affiliation or that it is practically impossible for him to do so.

MONITORING OF METHADONE PATIENTS

Certain practical, ethical and legal questions arise in considering the mechanics of an effective national methadone monitoring system. It is well known that many heroin users are unwilling to identify themselves to medical authorities for fear of subsequent legal repercussions. Consequently, a significant number of such individuals register for methadone maintenance under pseudonyms; this practice is acknowledged by many clinicians involved in methadone maintenance and is usually not considered cause for serious concern from the treatment standpoint. Many clinicians feel that stressing positive personal identification early in treatment, or requiring it as a prerequisite to acceptance in a program, often impedes therapeutic progress and would likely deter many heroin users from accepting methadone maintenance. However, effective monitoring obviously requires an accurate system of identification to prevent an individual from obtaining methadone from more than one source.

Prescription and other authorized use of methadone is currently monitored by the Bureau of Dangerous Drugs, and, consequently, associated information is potentially available to law enforcement authorities. **We feel that in light of the incriminating nature of the personal information collection inherent in the methadone monitoring process, such data should not be accessible to law enforcement officials unless some specific infraction of the methadone control regulations is involved. Such data should not be used for identifying, for law enforcement purposes, persons who are or have been**

users of illegal drugs, such as heroin. We feel that methadone prescription monitoring must be conducted by a regulatory body which is separate from law enforcement. If some infraction of prescription or program registration regulations is detected, the monitoring body should have the option of rectifying the problem through treatment channels, if strict legal action is not considered by them to be necessary or appropriate. Furthermore, pharmacists should be prohibited from releasing identifying information to anyone but the designated monitoring authorities. The responsibility for initial identification of the patient must rest with the medical authorities conducting the clinical program. As we have suggested elsewhere in this report, effective monitoring of medical use of all prescription drugs would be facilitated by the inclusion of the patient's social insurance number and the physician's registration number on the prescription.

The United States Special Action Office for Drug Abuse Prevention (SAODAP) has proposed a "Unique Identification System", based on a computerized footprint analysis and centralized data bank, which allows positive detection of duplicate registration in methadone maintenance programs without personal identification of the patient. Each person, when he enters a methadone program, provides a footprint sample, and is assigned an arbitrary identification number. Registration in different programs is detected if a second footprint sample from the same individual is submitted to the central clearinghouse. Individuals are never personally identified in these government records. This system is currently on limited experimental trial in Washington, D.C. and some surrounding areas, and is reportedly functioning satisfactorily. We do not recommend this system for Canada at this time, but do suggest that the development of the program in the U.S. be carefully observed. This system should be reconsidered at a later date if there is sufficient change in the present heroin and methadone situation in this country.

RELATIONSHIP OF METHADONE MAINTENANCE TO OTHER TREATMENT PROGRAMS

Concern for the individual—and for the effect on others of a steadily increasing opiate-dependent population—demands that we persist with our efforts to find effective means of achieving cure. Most observers feel that the path to success lies along the lines of a multi-modal approach in which methadone maintenance is only one of several approaches. In this multi-modal approach, designed to help the patient to find the way that is most congenial to him, methadone maintenance can play a stabilizing and transitional role. It can take the pressure and stress of living in the illicit market off the drug user, and give him the opportunity to begin to try to reorganize his life, to find work, to build new relationships, and generally to recover a new sense of self-worth. Thus stabilized and supported, the individual may then be more amenable to other approaches directed to helping him to give up drugs.

altogether. Many will argue that it is illusory to think you can move towards a drug-free goal by starting off with methadone maintenance since this reinforces the reliance on drugs. So long as the individual can obtain the drug at little inconvenience and no cost he is not going to think seriously about giving up drugs. The answer to this may be that the individual cannot have very promising prospects for cure until some relief of stress and some relative stability have been introduced into his life.

HEROIN MAINTENANCE

If methadone maintenance is to be generally available, the question that inevitably arises is, why not heroin maintenance? In approving methadone maintenance we have approved a policy of legal availability of an opiate narcotic for maintenance purposes. Why not, then, heroin maintenance as well?

There are reasons why methadone maintenance is preferred to heroin maintenance: the fact that it is longer-acting, produces less euphoria and is effective when administered orally. All of these are thought to make it more compatible with normal functioning. It has not been proved in controlled tests that persons can function more effectively on oral methadone than on intravenous heroin, but this is the assumption of those who favour methadone, and it is a reasonable inference from the fact that methadone requires less frequent administration and produces less peak psychotropic effect.

Many physicians are strongly opposed to the intravenous administration of a drug if it can be avoided because it is regarded as a potentially dangerous procedure. Opponents of heroin maintenance point out that after a time it can become very difficult to find suitable places in the body for intravenous administration. They also stress the difficulty of establishing and stabilizing the dose level required to keep the dependent person out of the illicit market. Tolerance develops to heroin much more readily than to methadone. Finally, there is the difficulty of detecting the illicit use of heroin under heroin maintenance.

There can be little doubt, however, that fewer opiate dependents can be reached with methadone maintenance than could be reached with heroin maintenance. An American authority has estimated that about twice as many would respond to heroin maintenance.¹

While the movement in Great Britain has been away from heroin maintenance towards methadone maintenance (although the extent to which methadone is administered intravenously removes much of the significance of the change), heroin maintenance is still used to attract into treatment opiate-dependent persons who will not accept methadone. (See Appendix G.2 *Some Aspects of the "British System"*.) The reasoning is that once the clinics have made effective contact with such persons, they can be more easily

persuaded to go onto methadone, or even to attempt abstinence. This was the reasoning behind our recommendation in the *Treatment Report* that heroin maintenance be permitted on a controlled, experimental basis, as a treatment adjunct to be used in exceptional cases. After expressing certain misgivings and degrees of support for this proposal among the members of the Commission, we said: "On balance, however, we believe that the availability of heroin maintenance will increase the capacity of the overall treatment process to win patients from the illicit market and for this reason it is a justified experiment." [P. 22.]

The Canadian Medical Association and the Federal Government expressed themselves as opposed to the proposal, although their rejection was not accompanied by any particular attempt to articulate reasons. This deep-seated, and almost instinctive, opposition becomes increasingly difficult to reconcile with the growing official commitment to the alternative policy of legal availability of opiate narcotics in the form of methadone maintenance. It may be that one of the unspoken reasons for opposition to the proposal of a controlled experiment with heroin maintenance is that it will attract American addicts into Canada, in much the same way as Canadian addicts were attracted to Great Britain by the "British system" in the 1960s. This need not be the case if suitable controls are exercised. With the greatest respect for those who rejected our proposal we reaffirm our belief that it would be a useful experiment under the controlled condition specified in the *Treatment Report* as follows:

As in the case of methadone maintenance we believe that heroin should be administered only by physicians accredited to specially authorized treatment centres, and then only after a panel of three physicians in the centre have approved such administration. It should be administered on the premises, and the patient should be required to remain on the premises until he is judged fit to leave. [P. 21.]

A similar experiment in heroin maintenance has been advocated by the Vera Institute of Justice in New York. The following are selected passages from a summary of its proposal entitled "Heroin Research and Treatment Program" (1972):

... the proposed experimental program would test a new treatment approach for addicts who have failed on methadone

... It would not involve prolonged heroin maintenance. What is being proposed is an experiment where heroin would be used for limited periods of time in order to attract, retain and stabilize patients who would subsequently be transferred within one year to treatment such as methadone maintenance, abstinence, or a narcotic antagonist (naloxone or cyclazocine)

... In contrast to the British system, all heroin used in the program would be administered within the clinic under close supervision to prevent its sale or diversion³

One of the research objectives of the program would be "to compare the effectiveness of a treatment program that employs heroin (in combination with injectible methadone) as a treatment drug with a methadone maintenance program".³ Up to now there have not been any published studies in Great Britain (where there is a natural laboratory for such purposes) of the comparative effects of heroin and methadone maintenance on the capacity to function in a socially acceptable manner, although there are some studies presently in progress. The reason for the lack of such studies in Great Britain may well be the heavy reliance on intravenous rather than oral methadone.

At the time of writing this report the Vera Institute of Justice had not yet been able to obtain the necessary approvals for its proposed experiment from federal and state regulatory agencies.

For the present, our recommendation is not that heroin maintenance be made as generally available as methadone maintenance, but that it be something which approved treatment units should be able to resort to as a transitional measure to attract from the illicit market opiate dependents who will not respond to methadone.

The controlled experiment with heroin maintenance would be directed to its use as a last resort in selected difficult cases when every reasonable effort has been made to withdraw the addict from the illicit market by other means.

NOTES

Methadone Maintenance

1. M. Krakowski and R. G. Smart, "Report on the Evaluation of the Narcotic Addiction Unit's Methadone Maintenance Treatment Program," Unpublished manuscript, Project C 214, Substudy No. 492, Addiction Research Foundation, Toronto, 1972, p. 4.
2. W. H. McGlothlin, U. C. Tabbush, C. D. Chambers and K. Jamison, "Alternative Approaches to Opiate Addiction Control: Costs, Benefits and Potential," Paper prepared for the U.S. Department of Justice, Bureau of Narcotics and Dangerous Drugs, February 1972, mimeographed, p. 21.
3. Ibid., p. 40. See also Section X *The Therapeutic Community*.
4. E. M. Brecher & the Editors of Consumer Reports, *Licit and Illicit Drugs: The Consumers Union Report on Narcotics, Stimulants, Depressants, Inhalants, Hallucinogens, and Marijuana—Including Caffeine, Nicotine, and Alcohol* (Boston: Little, Brown, 1972), p. 78.
5. See note 3 above.
6. *R. v. Gordon*, 49 C.C.C. 272.
7. See note 2 above.
8. McGlothlin et al., "Alternative Approaches to Opiate Addiction Control," pp. 5-6.

Heroin Maintenance

1. W. H. McGlothlin, U. C. Tabbush, C. D. Chambers and K. Jamison, "Alternative Approaches to Opiate Addiction Control: Costs, Benefits and Potential," Paper prepared for the U.S. Department of Justice, Bureau of Narcotics and Dangerous Drugs, February 1972, p. 34.
2. Vera Institute of Justice, "Heroin Research and Treatment Program," New York, May 1972, (mimeographed), pp. 1-2.
3. Ibid., p. 5.

Section X

The Therapeutic Community

In discussing the role of methadone maintenance, reference has been made to the therapeutic community as the approach which stands most strongly today for treatment with a drug-free goal. Because of the importance which the therapeutic community has assumed in the debate concerning the proper approach to treatment, some further observations on this approach are appropriate. There have been, and there continue to be, strong differences of view between those who favour the therapeutic community and those who favour other approaches to treatment or management, in particular, methadone maintenance.

We examined the therapeutic community in some detail in our *Treatment Report*, and while we indicated certain limitations and cited some critical appraisal, we came, generally speaking, to favourable conclusions. We recommended that the Federal Government encourage the development of this form of treatment as "*one option available in any national multi-modal drug-dependence program*". We did not, as some have suggested, take the view that the therapeutic community was the preferred form of treatment in all cases of drug dependence. In the case of opiate dependence we expressed the view that methadone maintenance "provides to date the cheapest and most effective weapon we have for dealing with large-scale heroin dependence". In the case of dependence on the intravenous use of amphetamine or 'speed', however, we expressed the opinion that "*Small therapeutic communities, restricted to speed users, offer the best hope for successful treatment and rehabilitation*".

Since our *Treatment Report* there have been some critical appraisals of the therapeutic community that have tended to emphasize the limited nature of its role in the treatment of drug dependence. In a report prepared for the Bureau of Narcotics and Dangerous Drugs of the U.S. Department of Justice, McGlothlin and his associates stated that:

Even if therapeutic communities were made widely available, admission requirements reduced, and no competing treatments existed, it is doubtful if more than 10 per cent of the addict population could be maintained in this modality.¹

The Consumers Union report on *Licit and Illicit Drugs* was even more critical, suggesting that support for the therapeutic community had been positively misleading, and had given people false expectations as to the possibilities of cure.² The Ford Foundation report *Dealing with Drug Abuse* suggested that "it would be surprising if careful evaluation showed that more than five per cent of those who come into contact with the [therapeutic community] are enabled to lead a reasonably drug-free, socially productive life."³ As so often in these areas of uncertainty and controversy, there has been something of action and reaction.

Everyone is agreed that a major difficulty in coming to sound conclusions about the therapeutic community is that there is very little reliable data on which to base evaluation. Generally speaking, therapeutic communities have not encouraged such evaluation. They tend, understandably enough, to emphasize the total numbers who remain drug-free for a reasonable period of time, rather than the comparatively small proportion of the drug-dependent population who are attracted to the therapeutic community in the first instance and the large proportion of those who drop out of the program or "split" after a short time. In a field in which it is so difficult to effect cure, any cures are noteworthy and welcome, whatever their number. Critics of the therapeutic community are concerned, however, about its relative yield in relation to its cost. Because of the low numbers involved, particularly the number of those who "graduate", and the need for residential facilities, the therapeutic community is an expensive form of treatment, although it is less expensive than incarceration or hospitalization. Its cost does, however, invite a much closer look at its efficacy.

While we recommend continued support for the therapeutic community as one alternative in a multi-modal approach to treatment, we do so with recognition of its relatively limited role but also in the conviction that it is our duty, as a society, to make the most effective means of pursuing the difficult goal of abstinence sufficiently accessible to those who wish to pursue it. Obviously, it is more difficult and costly to pursue the goal of abstinence than it is to apply the policy of opiate maintenance. But we must continue to encourage the goal of abstinence and to hold it out as a real possibility, and for this it is necessary to maintain sufficient therapeutic community facilities. It is not an either-or proposition; we must have both opiate maintenance and therapeutic community. (Moreover, as we have said elsewhere, the therapeutic community does not exclude some acceptance of methadone maintenance.)

A report on "414", a residential therapeutic community run by the Addiction Research Foundation in Ontario, suggests that experience with the therapeutic community as a form of treatment of the adolescent user of 'speed' has been somewhat discouraging.⁴ The report indicates that about 85 per cent of those who enter drop out or 'split' before the completion of the program, and that because of the restlessness and desire of adolescent

residents to return to the outside world it is very difficult to implement the idea of a peer controlled therapeutic community, which is one of the main characteristics of the Synanon model. Indeed, there may be some conflict between the goal of re-entry into society, recommended in our *Treatment Report* and now more and more widely accepted by therapeutic communities and funding agencies, and the goal of maintaining some continuity of leadership by experienced members of the community. The report on "414" also stresses the phenomenon of "burn out" which is discussed in Appendix M *Innovative Services*. There is no doubt that constant contact with young persons dependent on 'speed' is an exhausting experience, and there must be realistic assumptions concerning the need for a regular renewal of staff after fairly short periods. The report suggests that the functional life of a staff member in such a community is between twelve and eighteen months, and that a staff member should not be expected to commit himself for much longer than a year.

The report on "414" contains this sombre conclusion concerning the efficacy of the therapeutic community in the treatment of the adolescent abusers of amphetamines:

Based on what we already know, however, we have severe reservations about whether therapeutic communities are *the* answer for effective treatment of this population. We find the financial costs to be high, and the human costs in terms of staff "burning out" to be considerable. The high rates of splitting especially after very short periods of time in the program contribute heavily to costs and make it unlikely that significant benefits are derived by these residents. The greatest positive changes in residents, we expect, will be found among graduates who comprise less than 15 per cent of persons who enter the program. (And, it is not always clear that many of these persons would not have significantly improved had it not been for their experience at "414". Our follow-up study should help clarify this point.) [Pp. 20-21.]

Our comment on these observations is that we are not surprised by the difficulties that have been encountered. The question is whether we have anything better for the intravenous user of amphetamine or 'speed'. The truth is that this form of drug dependence appears to be the most difficult to treat or manage, since we do not have an acceptable form of maintenance for amphetamine dependence nor, as yet, a fully satisfactory and operational antagonist. If the therapeutic community cannot succeed then we frankly do not know what can. We suspect that the best results are still to be obtained by a one-to-one relationship with an inspirational human being, where that can be developed. Meanwhile, we believe that we should continue to apply the technique of the therapeutic community as effectively as possible, accepting the fact that the results will continue to be fairly disappointing. Once again, we must offer the opportunity, for those who are prepared to take it, to escape from amphetamine dependence.

There has been a considerable increase in the number of therapeutic communities in Canada in the last year or so. Appendix H on *Treatment Capacity in the Provinces* contains a list of some 28 therapeutic communities, with a total residential capacity of slightly over 600, as of February 1973. Many of these have received financial assistance from the Federal Government through the Non-Medical Use of Drugs Directorate. At the time of our survey many of these communities were operating under capacity. The total number of persons in residence was under 400. Thus, it is far from clear how much more capacity of this kind, if any, is required in Canada to meet the potential for the therapeutic community approach to treatment. As we suggest, however, in Section VIII *General Observations Concerning Treatment*, this operation at apparent under-capacity may be due in many cases, not to a lack of need or demand for the therapeutic community form of treatment, but to an insufficiency of qualified staff.

There is now recognition of the necessity of reintegration into the general community and a greater emphasis, as there must be, on the need for evaluation of results. Such evaluation calls for follow-up on graduates in the general community for a period of several months or even years to assess their performance in terms of the goals of abstinence from harmful drug use and social rehabilitation. The overall goal is sometimes described as the development of a "positive life style" reflected in abstinence from dependence-producing drug use and criminal activity, stabilized accommodation, school attendance or stable employment, and satisfactory personal and social relationships. Such evaluation will always involve a large measure of subjective judgment, but the obligation to evaluate and to render some accounting will encourage the development of a self-critical attitude and the disposition to make necessary changes in approach from time to time. It is doubtful if there can ever be satisfactory comparative evaluation of the results achieved by the therapeutic community and other forms of treatment or management. Apart from a difference of goals in many cases, there is the difficulty of establishing suitably matched control groups. We simply have to accept the fact that the therapeutic community is a form of treatment which offers some reasonable hope for the person who seeks to become abstinent, and as such deserves its place in a multi-modal treatment program. At the same time, we must be mindful of its relative cost in our total allocation of financial resources for the treatment or management of drug dependence.

NOTES

1. W. H. McGlothlin, U. C. Tabbush, C. D. Chambers and K. Jamison, "Alternative Approaches to Opiate Addiction Control: Costs, Benefits and Potential," Paper prepared for the U.S. Department of Justice, Bureau of Narcotics and Dangerous Drugs, February 1972, mimeographed, p. 40.
2. E. M. Brecher & the Editors of Consumer Reports, *Licit and Illicit Drugs: The Consumers Union Report on Narcotics, Stimulants, Depressants, Inhalants, Hallucinogens, and Marijuana—Including Caffeine, Nicotine, and Alcohol* (Boston: Little, Brown, 1972), p. 82.
3. P. M. Wald & P. B. Hutt, *Dealing with Drug Abuse: A Report to the Ford Foundation* (New York: Praeger, 1972), p. 195. Further, Smith and Gay in "It's so good don't even try it once" observed that:

Out of every hundred who seek help in a "[therapeutic] community" program, more than 90 are rejected at the door or leave the program after only a few weeks. Of those who remain, 80-90 per cent remain heroin-free and crime-free for at least one year. [Englewood Cliffs, N.J.: Prentice-Hall, 1972, p. 10.]
4. R. C. Brook & P. C. Whitehead, "'414': A Therapeutic Community for the Treatment of Adolescent Amphetamine Abusers," Unpublished manuscript, London, Ontario, January 1973.

Social Rehabilitation

In previous sections of this report and in several of the Appendices we have referred to the importance of social rehabilitation or reintegration in the treatment and control of drug dependence. Its importance is particularly reflected in the experience with parole (see Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada* and Appendix K *Parole of Heroin Dependents in Canada*), although it is also important in voluntary programs of treatment. It will be recalled that one of the reasons for the failure of the treatment program in the American hospitals at Lexington and Fort Worth was the absence of follow-up in the community. The role played in reinforcing drug dependence by the lack of the required ability or opportunity to obtain regular employment and to establish normal relations, as well as the attraction of the associations and style of life in the drug subculture is emphasized in several places in the report. (See, for example, Appendix C.4 *Patterns of Use*, "Termination of Use".) It would be difficult to exaggerate the importance of this problem.

Treatment and rehabilitation are overlapping processes. As treatment proceeds rehabilitation should be taking place. But the essence of rehabilitation is reintegration into the community—the restructuring of a life. Whether the goal of the treatment be abstinence or some form of management, as with maintenance or the use of an antagonist, its essential purpose is to bring the drug use under control. If this achievement is to have enduring effect there must also be a new basis for life which may strengthen the person's capacity to resist the temptations to engage in certain forms of drug use.

The drug-dependent person is frequently lacking not only in the self-confidence but in the capacity to obtain and hold regular employment and to establish and sustain normal personal and social relationships. He or she needs a lot of encouragement and assistance in these efforts. Every one of them can appear as an enormous and insurmountable challenge.

Helping a person in these circumstances requires a great deal of time, patience and energy. Frequently what the person needs most is someone to talk to who can be available for moral support at the right time. There is

also a need of practical assistance in finding suitable employment and accommodation and new relationships and interests in life.

We have stressed the need for more probation and parole officers to assist with this work. There is also a need in established treatment facilities for more trained personnel to assist with social rehabilitation. It has been suggested that the effectiveness of treatment programs in stimulating the motivation of patients depends in a considerable measure on the extent to which they are themselves able to provide assistance with these practical problems.¹ Finally, there is a large field of action here for volunteer men and women who can provide companionship, moral support and practical help for persons seeking to break from the old associations which are so closely identified with the drug dependence itself.

The number of cases to which any worker can do justice is very limited—perhaps as few as half a dozen. This gives some idea of the numbers required for the work of social rehabilitation. The numbers required cannot possibly be recruited and maintained on a regular professional basis. They must be supplemented by a large pool of voluntary effort, with some assistance in the way of minimal training from established agencies.

Persons involved in the work of social rehabilitation, whether professionals or laymen, require a good understanding of what they face, of the nature of drug dependence and the difficulties the drug-dependent person encounters in the process of rehabilitation. It is the kind of knowledge that will keep them from becoming too easily discouraged. They must be persons of optimism and faith and great patience. While being sympathetic and good listeners, they must be fundamentally “doers”—persons who are good at getting out and about and getting practical things done. Too much time can be spent examining the past in a manner that still further undermines the drug-dependent person’s sense of personal adequacy. What is required is to increase the person’s sense of self-confidence by success in some practical undertakings and by increased involvement with other people in a socially acceptable pattern of life. The goal of rehabilitation is an enhanced sense of personal dignity and worth and satisfactions in life which fill the need for which the drug and the former associations were sought.

NOTE

1. Edward C. Senay and Matthew Wright (Illinois Drug Abuse Program, Museum of Science & Industry, Chicago), “The Human Needs Approach to Treatment of Drug Dependence,” Paper presented at the 30th International Congress on Alcoholism and Drug Dependence, Amsterdam, September 1972.

Part Four

Non-Coercive Influences

Research and Information

INTRODUCTION

The primary role of science in the area of the non-medical use of drugs is to provide information to better enable individuals and society to make informed and discriminating decisions regarding the availability and use of particular drugs, and the appropriate responses to such use. As we suggested in the *Interim Report*, scientific research may, in principle, provide useful information and guidance in certain areas, but the scientific method itself is not a policy-making process. Rather it is a practical system designed to explore and test, in abstract fashion, certain kinds of notions or hypotheses. While the aim of scientific research is to maximize objectivity, the interpretation and application of scientific data, as well as the original delineation of the problem or area to be studied, is usually a subjective venture, regardless of the controls maintained in the formal analysis. The practical use of technical data in the personal and social sphere often involves aesthetic, economic, legal, philosophical and moral issues which are not easily amenable to scientific study as we know it today.

In principle, even if there were complete agreement regarding the "scientific facts" of non-medical drug use, the formulation of the appropriate social response at various levels of government would necessarily be based on subjective value judgments regarding the ultimate meaning and implications of the available technical information. It is important to realize the central role of personal concepts of morality and reality in this procedure, and to make explicit the value judgments underlying the interpretation and use of scientific data. At the same time, we must make every effort to assure that this essential subjective evaluation process has the benefit of the most complete and objective scientific and technical information possible.

In the *Interim Report*, we observed that there was general agreement that society lacked sufficient reliable information to make sound social policy decisions and wise personal choices in relation to many aspects of non-medical drug use. Not only citizens, but administrative officials, legislators, physicians,

scientists and other experts felt that they had an inadequate basis for judgment on this subject. This lack of adequate information at the decision-making level was considered to be the result of problems or gaps in various stages of research, evaluation of existing technical data and information communication. The overall situation has improved substantially since the *Interim Report*, but much remains to be done to improve this aspect of society's non-coercive response to non-medical drug use.

In recent years considerable attention has been focussed on the role of government in science and on the difficulties in efficiently acquiring, processing, and disseminating scientific information. In the past decade Canada has made considerable progress in developing more coordinated general national and international science policies. A number of major reports on various aspects of Canadian scientific research activities and policies have been published by government and non-government groups, including the Science Council,¹ the Senate Special Committee on Science Policy,² the Association of Universities and Colleges of Canada (AUCC),³ and the Organization for Economic Cooperation and Development (OECD).⁴ In 1971 the Ministry of State for Science and Technology (MOSST) was established and given general responsibility for the formulation and implementation of federal science policy in Canada.⁵

The Science Council has also published several detailed studies of Canadian *scientific and technical information* (STI) facilities and needs, and has made specific proposals for the development of federal STI policy.⁶ The Task Force on Government Information made two relevant reports in 1969,⁷ and the OECD published a major review of Canadian technical information capabilities and policies in 1971.⁸ Since then both the Senate Special Committee reports and the AUCC reports cited above have dealt further with these issues. As well, the annual reports of the president of the National Research Council contain significant STI discussion.⁹ Several background papers on documentation and information in the area of non-medical drug use were prepared for the Commission,¹⁰ and the basic issues have been discussed in our previous reports. We will not attempt to duplicate here the detailed presentations in the various reports noted above, but will focus on certain drug-related concerns within the framework of the developing federal general science and information policy.

In most respects, the research and technical information needs in the area of non-medical drug use are similar to those in many other scientific fields. It would be inefficient and unrealistic to attempt to create a national drug research or technical information system which was not an integral component of the broader Canadian research and STI networks and programs currently evolving. However, the multi-disciplinary nature of the study of non-medical drug use, certain legal and ethical considerations regarding the substances used, and constitutional issues involving education and health care pose some problems in this area which require special consideration.

In the discussion which follows, the topics of Research, Illicit 'Street Drug' Analysis Facilities, and Scientific and Technical Information are dealt with in primarily separate, but overlapping presentations.

RESEARCH

Until very recently there had been no coordinated general federal effort in non-medical drug use research. Prior to the appointment of the Commission, various related research efforts in universities and other institutions had been supported directly or indirectly by the Federal Government through regular granting channels such as the Medical Research Council (MRC) and, less commonly, the National Research Council (NRC), the Canada Council (CC), National Health and Welfare grants, and National Mental Health grants. In addition, certain relevant research projects had been conducted from time to time in government chemistry laboratories and other federal facilities and agencies. The Federal Government has had little direct involvement in alcohol studies. Although it was possible for government to permit experimental pharmacological research with cannabis and certain other illicit drugs under the federal *Narcotic Control Act* and *Food and Drugs Act*, within the framework of the United Nations *Single Convention on Narcotic Drugs, 1961*, no such studies were authorized in Canada until 1970. In several instances during the previous decade certain government officials actively discouraged interested scientists from working in this area. Practical roadblocks to such research had existed at both the federal and provincial levels.

In 1946, the former Department of Pensions and National Health published a small booklet entitled *Smoking*. However, it was another decade before tobacco began to be recognized as a high priority national health problem. In 1963, the first Canadian Conference on Smoking and Health was held, bringing together representatives of federal and provincial governments, volunteer agencies, professional associations, and the tobacco industry. It was recommended by the conference that the Department of National Health and Welfare assume a coordinating and supporting role in a national program of smoking research and health education. Practical implementation of the federal Smoking and Health Program began in 1964. The Program became involved in studies of extent and patterns of tobacco use, related morbidity and mortality data, chemical components of tobacco smoke, and experimental education programs and smoking withdrawal clinics. The Program did not give research grants, but occasionally issued contracts for scientific work in certain areas. The Smoking and Health Program now operates within the Non-Medical Use of Drugs Directorate. Recently a Cancer Research Coordinating Committee was established which involves the active participation of the Medical Research Council, the Department of Health and Welfare, the National Cancer Institute and the Ontario Cancer Treatment and Research

Foundation—the four major Canadian sources of funds for cancer-related research. These agencies have provided considerable support for tobacco studies and certain other drug-related investigations.

For a number of years, the Addiction Research Foundation (ARF) of Ontario has been the major Canadian center of scientific activities in the area of non-medical drug use. Although this provincial agency was originally devoted almost exclusively to alcoholism treatment, education and related research, in the past decade the Foundation has become increasingly involved in a wide range of activities pertaining to non-medical drug use in general. In addition to a significant intramural research program, some of which is conducted jointly with the University of Toronto, the Foundation administers a small grant program which provides financial support for research projects in universities and other institutions. Other provinces also support agencies with somewhat similar but generally more limited mandates for various information, education, treatment and research activities. Perhaps most notable are the Narcotic Addiction Foundation (NAF) of British Columbia, and the Office de la prévention de l'alcoolisme et des autres toxicomanies (OPTAT) in Quebec.

While private industry is primarily interested in the medical use of drugs, much research which is relevant to non-medical drug use is conducted by pharmaceutical companies. For example, they often collect considerable data on toxicology and drug adverse reactions. Although the Commission has obtained a significant amount of research information from certain drug companies, much of their data is not readily available to the scientific community in general.

PERSPECTIVES AND RECOMMENDATIONS OF PREVIOUS COMMISSION REPORTS

As noted earlier, in the *Interim Report* we indicated that there was a great lack of adequate research in many important areas concerning the non-medical use of drugs.* Until very recently there had been limited scientific investigation of certain illicit drugs, such as cannabis, because of a variety of factors, including the lack of general medical use or previous widespread non-medical use in the Western world, the illegal nature of the drugs involved, and the reluctance of governments to authorize or encourage such research. Many scientists had communicated to the Commission feelings of dissatisfaction and frustration with government research policy in this field. We felt that in some areas, public policy, including research policy, had been influenced more by law enforcement considerations than by scientific concerns.

We recommended that the Federal Government actively encourage, solicit and finance research into the effects, the extent, the causes, and the prevention and treatment of dangerous aspects of non-medical drug use,

* *Interim Report*, pp. 224–234.

and that government should ensure an environment of flexibility and freedom for such work. We recommended that the Federal Government make standard samples of drugs, such as cannabis, available to bona fide researchers for scientific purposes. While cooperation with other countries was advised, we recommended that Canada take the initiative to develop an independent research program, including Canadian production of cannabis supplies for experimental research. At the time of the *Interim Report* a major emphasis was on problems of cannabis research, although the bulk of our discussion was addressed to non-medical drug use research in general.

We recommended the establishment of a national scientific agency to stimulate and coordinate research, and to collect, evaluate, and disseminate the resulting data. We felt that this responsibility could best be carried out by an independent agency, free from political interference, with no connections with responsibility for law enforcement. We contemplated that such an agency might best be independent of government, but should result from careful federal-provincial consultation. While not ruling out a significant contribution by government research personnel, we stressed the importance of involving independent scientists in universities and other institutions in the overall research effort. We emphasized that government policy and action in this area should be explicit, and the basis for government decisions made public. In the *Treatment Report* and the *Cannabis Report* we dealt with certain general scientific issues and made a number of specific suggestions as to directions and priorities for future research, but did not provide significant further commentary on the Federal Government's regulatory and financial activities and responsibilities in this area.

THE NON-MEDICAL USE OF DRUGS DIRECTORATE AND RELATED FEDERAL PROGRAMS: AN OVERVIEW

In January 1971 the Department of National Health and Welfare inaugurated a non-medical use of drugs program as a separate division of the Health Protection Branch (HPB). The program was designed to coordinate the federal effort in research, information, treatment and prevention of problems associated with non-medical drug use. Since its initiation the program has undergone numerous changes in organizational structure and senior administrative personnel. In the fall of 1971, it was temporarily reorganized as a separate directorate of the Department of Health and Welfare, but in 1972 it was altered again, and the director of the Non-Medical Use of Drugs Directorate (NMUD) now reports to the Assistant Deputy Minister in charge of the Health Protection Branch. A committee of experts was appointed from various disciplines, representing government and non-government sectors, to act principally as an advisory group to NMUD with respect to goals, priorities and policy, and to review research grant applications. The Directorate's internal structure is currently under-

going reorganization. New evolving bureaux are functioning at differing levels of activity and completeness. Most of their programs are still in the early stages of development.

The NMUD research program was initiated as a combined effort of the Health Branch and the Welfare Branch of the Department of National Health and Welfare, with the Medical Research Council. The program presently administers its own research budget and is no longer dependent on external support from National Health and Welfare grants; contributions to research funds from these sources were transferred directly to the program in 1972-73. The research program, which is basically extra-mural, has remained a joint endeavour with the Medical Research Council. The granting procedure is based primarily on the MRC model and general mode of operations. As noted above, applications are reviewed and decisions are made by expert committees assisted by outside consultants, many of whom are peers of the applicants in the scientific community. In addition to providing financial support through grants and contracts, the Directorate arranges federal authorization when needed and standard drug samples for animal, human and chemical research. Supplies of certain restricted drugs have been made available from the U.S. National Institute of Mental Health.

The Directorate has initiated a program to provide information and educational materials to the public and various special groups. As well, a scientific and technical information service for NMUD personnel and other researchers is being developed. Support for innovative service projects has accounted for a major part of the non-operating expenditures of the directorate. The activities of the Federal Government in this area are discussed in detail in Appendix M *Innovative Services*. The Smoking and Health Program, formerly under the Health Services Branch, was taken into NMUD in 1972 relatively unchanged, but with an increased budget.

In the first full fiscal year of its existence (1971-72) the non-medical drug use program operated on a budget of approximately \$4 million, most of which was accounted for by operating expenses. The estimated total expenditures (including services, contributions and grant funds channelled from other sources) for 1972-73 and 1973-74 were approximately \$8.5 and \$8.8 million, respectively. Table 1 provides a more detailed breakdown of these estimates.

For the last three years NMUD has provided summer research scholarships for graduate and undergraduate students working with established scientists. In the past, there were some problems coordinating the allocation of these student scholarships with general research funds and drug supplies for laboratory studies, but the program has improved considerably and appears to be making a valuable contribution to research and training in this area. For summer 1973, \$315,000 were allocated for 180 such scholarships.

There are other sections of the Health Protection Branch (HPB) which also deal with various aspects of non-medical drug use. The Drugs Unit of

HPB has three bureaux: the Drug Advisory Bureau, the Bureau of Dangerous Drugs, and the Drug Research Laboratories. The Drug Advisory Bureau administers the Poison Control and Drug Adverse Reaction Programs, maintains supplies of drugs for distribution for research or analytic purposes, and is responsible for maintaining standards of quality control in the pharmaceutical area. The role of the Drug Advisory Bureau in controlling the medical use of methadone is discussed in detail in Appendix G.1 *Methadone Control Program of the Government of Canada*. The Bureau of Dangerous Drugs (BDD) monitors drug importation, manufacture, distribution and, in some instances, prescriptions and medical use. BDD is also involved in other aspects of the enforcement of federal drug laws, and keeps national records of certain illicit drug users and offenders. The regional laboratories of the HPB Field Operations Directorate, along with the Drug Research Laboratories in Ottawa, provide most of the federal forensic drug identification, and are also involved in certain intra-mural research projects.

TABLE 1
NON-MEDICAL USE OF DRUGS DIRECTORATE
ESTIMATED EXPENDITURES*

	1972-73	1973-74
	in thousands of dollars	
<i>Operating</i>		
(a) General drug program.....	3,018	2,527
(b) Tobacco program.....	386	400
(c) Other.....	99	57
TOTAL.....	3,503	2,984
<i>Grants and Contributions</i>		
(a) Information & education.....	—	100
(b) Innovative services.....	3,750	3,950
(c) Sociological & biomedical research.....	1,100	1,520
TOTAL.....	4,850	5,570
<i>Capital</i>	15	15
TOTAL DIRECTORATE ESTIMATES.....	8,368	8,569
<i>Services by Other Departments</i>	174	262
TOTAL COST OF PROGRAM.....	8,542	8,831

*Canada. *Estimates for the fiscal year ending March 31, 1974.* Ottawa: Information Canada, 1972.

Various other departments and agencies of the Federal Government, such as the Departments of the Solicitor General, Manpower and Immigration, and Secretary of State, and the National Research Council Laboratories

have been involved from time to time in research projects relevant to the non-medical use of drugs. Most such studies are of a statistics-gathering nature or involve evaluation or monitoring of some of the agency's activities. Data from many of these projects are discussed in the appendices to this report. In 1970-72 the Department of Agriculture and the Department of National Health and Welfare conducted a joint botanical research program in Ottawa which, in addition to exploring certain genetic aspects of cannabis, provided a standard Canadian supply of marijuana for research purposes.

GENERAL OBSERVATIONS AND RECOMMENDATIONS

In the first year of the NMUD research grant program numerous scientists communicated to the Commission that they were frustrated with various aspects of the Directorate's services. The problems generally centered around unexpected and unexplained delays in decision-making, subsequent feedback, and the delivery of grant funds and experimental drug supplies after committee approval. The major administrative difficulties underlying these problems have apparently been resolved, but recent communication with Canadian scientists indicates that some dissatisfaction still exists, even though there has been substantial improvement in these services. **Further effort will be needed to make the decision-making process more efficient and to improve the quality of the feedback provided to both successful and unsuccessful applicants. We feel that special effort should be made to communicate detailed critical and constructive comments to unsuccessful applicants to guide them in preparation of future proposals. New researchers in the area must be encouraged and assisted in learning the essentials of "grantmanship" within the context of this program. Additional effort should be made to operationalize, quantify and communicate the specific criteria and decision-making processes employed in distributing research funds.**

In principle, the NMUD research committee must deal with applications requesting one or more of the following: (1) authorization to possess narcotic or restricted drugs for research or analytic purposes; (2) standard supplies of such materials or a licence to obtain them independently; (3) financial support for specific research projects. There has been some controversy regarding the appropriate criteria to be employed in the various situations which arise, and the legal obligations and limits of jurisdiction of the Federal Government in this regard. Researchers or analysts must obtain federal authorization for work with narcotic or restricted drugs, and such scientists typically also request supplies of the drugs and often financial support as well, but this is not necessarily the case. For example, a researcher may work under non-federal or independent support and might have other legitimate sources of the drugs in question.

Because of competition among scientists for obviously limited funds, highly selective procedures must be employed in allocating financial support, with the primary criteria essentially being: (1) the relevance of the topic

with regard to research priorities; and (2) the scientific excellence of the specific proposal and researchers involved. Assuming that ethical requirements have been met, these dimensions are assessed by the research committee and its external referees—principally the applicant's peers in the scientific community.

Similarly, if a researcher has requested drugs which are in limited supply, a highly selective process would be indicated, as with grant applications. However, if financial support is not involved, and only authorization is requested, or authorization and drugs in common supply, then a much simpler procedure is generally appropriate. In such situations, the obligations and powers of government, within the framework of the *Narcotic Control Act* and the *Food and Drugs Act* and related regulations, are rightly limited to establishing: (1) that the request involves a bona fide scientific effort; (2) that appropriate drug records are kept and precautions are taken to prevent diversion to illicit use; and (3) that the drugs are employed in a safe and ethical manner. With the present protocol, the responsibility for ensuring that the ethical requirements are met has been delegated to independent ethics committees—typically within the university or other institution involved. Approval from such a group is required before an application is considered by the NMUD research committee. Conditions of drug records and storage are subject to assessment by Health Protection Branch officials. Establishing that the drugs are to be used scientifically would rightly seem to be the duty of the research committee of peers appointed by the Federal Government, as is now the case.

The Commission feels that the Government need not declare itself on the merit of a particular research project if only a supply of drugs and/or research authorization is requested. Such applications should be routinely approved unless there is serious doubt about the credentials and qualifications of the scientist involved. We appreciate that there may be reasonable concern as to the likely value of certain research efforts, and that the temptation is strong to try to dictate quality at the bureaucratic level. But we feel that, in the long run, a substantial degree of flexibility and freedom for the individual researcher, within reasonable ethical and financial limits, is essential for the proper atmosphere for scientific advancement. In any event, the long-term output or quality of a researcher's work is generally under considerable assessment and control through various other processes within the institution or local community in which he works and need not be the direct responsibility of the Federal Government.

At the present time, authorization to conduct research with narcotic or restricted drugs is in some respects tied too closely to specific projects. **Given the necessary and continual evolution of research strategy and techniques, the government should ensure that the regulations do not place undue restriction on the flexibility necessary for the timely and effective pursuit of scientific goals. We feel that some form of general licensing of qualified**

scientists, rather than specific project authorization, may be more appropriate and efficient in the long run.

Determining scientific research priorities, keeping them flexible and timely, and communicating them effectively to the appropriate researchers is a very difficult task. Priority lists, especially in the area of non-medical drug use, rapidly become out-of-date unless subject to continual review and re-evaluation. If priorities are presented too dogmatically there is a very real danger of precipitating a 'bandwagon' effect at the top of the list, which may drastically reduce efforts which might in the long run have fruitfully gone into other important topics. **It is necessary that the Federal Government determine and communicate the general and specific areas of research which it feels are most in need of attention and are most likely to receive financial support—both immediate and long-term. It is also essential that there is reasonable flexibility in the granting system, and that procedures are developed which can provide rapid bureaucratic decisions and funds for work involving important emerging ideas, new approaches, 'crisis' situations, and transient and unique opportunities for scientific inquiry which might otherwise not be effectively supported.** It is important to appreciate differences in priorities at the national, provincial and local levels. While the major problems of non-medical drug use are clearly of national concern, local conditions or crisis situations may vary considerably among geographic areas. **The Federal Government should increase its capacity to share the costs of provincially directed, problem-oriented research.**

In the first two years of its research program NMUD predominantly supported cannabis studies in the biochemical, physiological and psychopharmacological areas. Relatively little work has been initiated or supported in the social-behavioural fields. NMUD has changed its early emphasis on biomedical cannabis research and is expanding the breadth of the co-ordinated program.

NMUD should continue to stress grants to scientists in universities and other institutions which are relatively independent of government. However, it should include specific contract projects and also research by government scientists in special situations which could not be efficiently handled through the grant program. In certain circumstances, the Directorate should provide or contribute to salaries on a contract or grant basis for researchers not working under traditional institutional auspices. (Note that the MRC grant program presently does not cover principal researcher salaries.) In most instances (e.g., universities and drug research foundations) senior researcher salaries come primarily from provincial sources.

Many aspects of non-medical drug use research are relatively new to the Canadian scientific community. Although the nation's research capabilities in this general field are expanding, significant areas exist where there are serious deficiencies in available scientific personnel—either because of an absence of researcher interest or a lack of appropriately trained or ex-

perienced investigators. This situation, of course, has significant bearing on the success and growth of the NMUD national research program. Considering the present stage of development of the NMUD program, the Directorate's overall budget for 1973-74 (see Table 1 on page 187) may be adequate. **However, as the capabilities and interests of the Canadian scientific community expand in this area, and as the NMUD program becomes more complete in its coverage of drugs and research topics, a significant increase in funds will be necessary.**

Compared to other research disciplines, the social sciences have traditionally been weak in Canada. Until recently there were few, if any, adequate facilities for advanced training in sociology and anthropology in this country. As a result, most Canadian social behaviour researchers have taken the bulk of their graduate studies in other countries—primarily in the United States or England. Similar situations exist in other specialized areas relevant to the study of the non-medical use of drugs, such as psychopharmacology. **The Federal Government should work with the provinces to generally strengthen relevant social science programs in Canada, and should initiate through NMUD a limited program of pre-doctoral and post-doctoral fellowships in various scientific disciplines specifically for advanced training in research in the area of the non-medical use of drugs.**

There is a general need for a coherent macroscopic approach to research in the field of non-medical drug use. There are significant questions requiring intensive investigation in relatively restricted and well-defined areas, but cooperative multi-disciplinary studies involving input from experts in various fields will be necessary for effective advancement of scientific knowledge of many important general topics. **The Federal Government should encourage multi-disciplinary research efforts, and generally act as a catalyst to arrange or facilitate communication and cooperative studies among scientists working in related areas.** While some degree of geographic centralization is preferable for such team efforts, it is not always essential if adequate communication channels exist. **The Federal Government should work with the provincial governments to strengthen existing multi-disciplinary research groups or to develop new ones within appropriate universities, provincial drug treatment and research foundations, hospitals, and correctional or other institutions.** Such efforts should include necessary financial support. A loosely coordinated, decentralized network of research groups across the country would seem preferable to a single national research institute located in one city such as Ottawa or Toronto, for example.

International conventions and controls regarding psychotropic drugs are discussed in Sections VI and VII of this report. Unlike the *Single Convention on Narcotic Drugs, 1961*, which did not attempt to regulate conditions for scientific study, the *Convention on Psychotropic Substances, 1971*, presents special provisions for controlling research with certain drugs. Article 7 of the Convention requires strict controls on the manufacture, distribution, possession and record keeping of hallucinogens (including THC) for research purposes. Furthermore, parties to the Convention are required to "prohibit all

use” of such substances “except for scientific and very limited medical purposes by duly authorized persons, in medical or scientific establishments which are directly under the control of their governments or specifically approved by them.” No attempt is made in the Convention to define the word “establishment”, or to specify the nature of the governmental “approval” to be required for non-government research bodies. **We feel that this clause should not be interpreted so as to exclude research by bona fide scientists working alone or in private or independent laboratories. If such interpretation is considered to be unavoidable Canada should not become a party to the Convention without suitable amendment or reservation on this point.** In our opinion the present Canadian provisions and protocol for authorization of research with narcotic or restricted drugs, as described above, satisfy the specific approval requirement of the Convention. The Convention provides for special licensing of researchers and approved establishments, and does not necessarily require separate specific approval for individual studies or projects by authorized scientists. The present Canadian system of control and regulation of drug storage and record-keeping by researchers is consistent with the Convention, and seems adequate to prevent diversion to an illicit market. **With the above reservation, we feel that Canada can provide an adequate atmosphere for scientific inquiry within the framework of the Convention.**

Many general and specific suggestions for research are made in the context of the discussions and reviews presented in other sections and, in particular, in the appendices to this report. In addition, our previous reports contain research recommendations. A separate section in the *Cannabis Report* was devoted to important topics and priorities for scientific study; that discussion is still appropriate in spite of significant recent advances in certain areas. The general issues dealt with there have relevance to research involving other drugs as well, and should be considered in that broader context.

ILLICIT ‘STREET DRUG’ ANALYSIS FACILITIES

Systematic analysis of ‘street drugs’ for non-forensic purposes was first undertaken in Canada at the Addiction Research Foundation (ARF) in 1969. Technical assistance and reference samples were provided to the Foundation by the Federal Food and Drug Directorate (now Health Protection Branch [HPB]). From time to time various other laboratories across the country were involved in ‘street drug’ analysis on a more limited and less systematic basis. The legal position of the analysts and of persons presenting the illicit drug samples for analysis was ambiguous, but a number of laboratories operated on the premise that such work was justified under provincial health statutes. As a result of local pressure from law enforcement officials, in early 1970 the ARF collection and analysis of illicit ‘street drug’ samples was temporarily suspended, pending legal clarification. Some critics felt that the services provided by the Foundation in this project facilitated the refinement of certain illicit drug manufacturing and trafficking activities—

in other words, they were concerned that such analyses and subsequent feedback would provide a source of quality assessment for the illicit market. The foundation, on the other hand, contended that the laboratory project had not become a service to the 'black market', but was a significant aid to medical treatment, a valuable source of epidemiological data for research and educational purposes, and a potentially important independent source of information input to the criminal-justice system.

In our *Interim Report* discussion of 'street drug' analysis, we observed:

It is feared by some that such facilities and information may encourage the use of drugs by advertising their availability and reducing dangers. It has been further suggested that distributors will take advantage of these facilities to have their products tested and, as it were, approved. Whatever force there may be in these arguments, they are outweighed, it would seem, by the necessity of a thorough and effective commitment to know as much as possible about what is happening in non-medical drug use and to make such knowledge available for the benefit of those who may be prudent enough to be guided by it. We have more to fear from willful ignorance than we do from knowledge in this field Sample analysis and wide dissemination of the results can only serve in the long run to deglamourize drugs and drug taking. [P. 228.]

In the *Interim Report*, the Commission pointed out that the existing facilities could not meet national requirements for the analysis of illicit market drugs in non-medical use. The FDD and RCMP laboratory facilities were not considered timely or appropriate sources of information for persons involved in medical treatment and research. The ARF laboratory project had been suspended; at any rate it had been a significant service primarily to those in Southern Ontario only. At the time we recommended:

. . . that the Federal Government actively investigate the establishment of regional drug analytic laboratories at strategic points across the country Such laboratories should not be connected with government or law enforcement, and should be free from day to day interference by public authorities. [P. 228.]

In November 1970, amendments to the *Food and Drugs Act* and the *Narcotic Control Act* were passed which clarified the legal position of those involved in such laboratory operations, and provided a protocol for federal approval and authorization. Under these regulations, physicians were permitted to receive samples of narcotic, controlled, and restricted drugs from individuals under their professional care, and to transmit such samples to a scientist authorized to conduct the analysis. Feedback from the analyst regarding the contents of illicit samples was restricted to the physician. In 1971 and 1972, certain aspects of the regulations were further altered, and, currently, physicians can receive drug samples for analysis from persons other than their patients. Applications for authorization to conduct analyses were considered from university, hospital, government, and private laboratories.

However, until recently, the Federal Government did not provide direct financial support for analytic projects outside of the Department of National Health and Welfare, since it was felt that such activities fell within the area of the delivery of health services and, consequently, would be more appropriately developed through provincial auspices and support. In the summer of 1971, the Food and Drug Directorate conducted workshops on illicit drug analysis designed to provide chemists from across the country with up-to-date information on standard techniques for the quantitative and qualitative analysis of drugs likely to be encountered on the street. A technical manual entitled "Some analytical methods for drugs subject to abuse" was produced and distributed.¹¹ Since 1972 the Federal Government has provided financial support for a few research-oriented, non-government 'street drug' projects through the NMUD analytical services program.

In 1971-72, the Commission surveyed all authorized laboratories, requesting information on the alleged and identified contents of samples received, general analytic methods employed, sources of funding, and relations with local law enforcement, medical and Federal Government authorities.* Today the bulk of the non-forensic analysis of illicit drugs in Canada takes place at the Addiction Research Foundation in Toronto, although many other laboratories across the country are involved from time to time in such work.

By early 1973, over 100 individuals in more than 50 different laboratories had received authorization to conduct analyses of illicit drugs. However, relatively few are seriously involved in 'street drug' work, and less than half a dozen have a program of notable magnitude. Although they are fully authorized, technically qualified, and generally adequately equipped, most of the laboratories are not actively involved in 'street drug' analysis for a variety of reasons. Lack of adequate financial support has been a considerable stumbling block and, as a result, some labs either charge for the service (as much as \$40.00 per sample) or have abandoned illicit drug work altogether. Those laboratories with somewhat successful programs have generally had to incorporate their costs into existing hospital, research or university budgets. In many locations, the anticipated street drug workload has not materialized, either because of an absence of local interest or need, or because of a lack of information and knowledge of such facilities by treatment personnel, illicit drug users and the general public.

In order to obtain more complete information on the composition of illicit drugs at the street level, the Federal Government expanded the facilities of the Health Protection Branch laboratory in Ottawa and the five regional laboratories. In 1971, the HPB initiated a special police drug seizure analysis program concerned with exploring the strength and purity of illicit drugs. In addition, the HPB has continued on a relatively small scale to analyse 'street drugs' for physicians "on an emergency basis".

* Some of the results of these studies are discussed in Appendix A *The Drugs and Their Effects* and in Tables A.8 and A.9 and note c to that appendix.

OVERVIEW OF ISSUES AND RECOMMENDATIONS

As discussed in detail elsewhere,* in order for controlled laboratory research to have practical social relevance it is necessary to maintain accurate information regarding the identity, purity and potency of the drugs being consumed from illicit sources. Furthermore, such knowledge is necessary for adequate public health protection and treatment, and is essential to meaningful administrative control and regulation. The potential importance of drug analytic services to physicians in aiding them in the diagnosis and treatment of drug-related problems has been widely discussed.

There is still some disagreement as to the most practical system for obtaining the necessary information about illicit drugs. As suggested in the *Cannabis Report*,† it is our belief that up-to-date systematic selection and analysis of police seizure samples, supplemented by information from a few medically oriented and other 'street drug' analysis programs in the primary urban centres, could provide an adequate basis for monitoring the general picture as to the drugs available on the illicit market. The special HPB study of police exhibits represents a significant step in this direction, but more systematic sampling is necessary.‡

The effective use of 'street drug' analysis in the diagnosis and treatment of acute and chronic drug effects poses somewhat different problems. It is frequently said that rapid 'street drug' analysis would be of considerable value to the treatment of adverse reactions. However, our studies suggest that immediate drug identification would typically not be as significant a contribution to the management of psychological adverse reactions as is often contended, since drug-specific treatment is generally not available in any event. The handling of such cases is usually based on the interpretation of behavioural symptoms, and most commonly involves 'talking down' and, often, the administration of minor tranquilizers, regardless of the original drugs involved.§ In cases of severe physical poisoning, rapid identification of the chemicals taken would be invaluable, but traditional drug analysis methods are usually unable to provide the necessary information quickly enough to be of effective use, even in the uncommon event that adequate samples of the drugs taken are immediately available. Currently, emergency poisoning or overdose treatment is primarily based on observable symptoms and verbal

* Appendix A.1 *Introduction*, individual drug discussions, and notes *b* and *c* to that appendix; *Cannabis Report*, pp. 25–32; and *Interim Report*, pp. 228–229.

† *Cannabis Report*, p. 155.

‡ See Appendix A, note *b*, and the text of that appendix for discussion of this special study. What is needed to improve this project is not analysis of a greater number of samples than are currently included, but the development of a more systematic sample selection procedure and a clearer delineation of the seizure populations and samples involved. Furthermore, the special analysis might be expanded to include an occasional inquiry into possible herbicides, pesticides and toxic fungi in natural plant materials such as marijuana, and an assessment of insoluble particles in those drugs likely to be injected by the user.

§ On the other hand, the availability of data correlating chemical identification with adverse reaction symptoms might well provide a basis for the subsequent development of more drug-specific treatment methods.

reports by the patient or his friends as to the chemicals involved. Immunoassay of drug, blood or urine samples might require only minutes for drug identification, and would be extremely useful in many such emergencies, but very few treatment facilities in North America are presently equipped for such methods.* In treating the effects of chronic drug use, chemical identification of the substances taken is generally not of paramount importance, since, again, drug-specific treatment is generally not provided or available—particular physical disorders and symptoms, and behavioural conditions are treated instead. As discussed in detail in Appendix A *The Drugs and Their Effects*, even though there is considerable misrepresentation, confusion and fraud within the illicit drug market, the deliberate mixture or adulteration of single drugs with other chemicals† or the substitution of more dangerous chemicals for an alleged drug is relatively rare in Canada. Drug users are presently more likely to be cheated than injured by the information gap regarding the identity of illicit drugs.

It would appear that the apparent 'street drug' analysis crisis of a few years ago is not now as important an issue as it was at the time of the *Interim Report*. However, some further attention is warranted: **We make the following recommendations:**

- (1) The Federal Government should continue, but refine, the present HPB special studies of police drug exhibits.
- (2) The Federal Government should continue to provide authorization, standard methods, and standard chemical samples for illicit drug analysis to bona fide scientists.
- (3) The Federal Government should continue to provide funds for a few key 'street drug' analysis research projects in the main urban centres across the country. As suggested in the *Interim Report*, the financing of such facilities could well be a matter of federal-provincial cooperation.
- (4) The Federal Government should encourage the correlation of chemical characteristics of the samples with the medical, social and legal conditions leading to the analysis. In this context, the Federal Government should explore the feasibility of coordinating drug identification with certain aspects of the present Poison Control Program of the HPB.
- (5) The Federal Government should encourage uniform central reporting and dissemination of the results of drug analyses, and should make the data from the HPB police seizure studies rapidly available to researchers for analysis and publication.

SCIENTIFIC AND TECHNICAL INFORMATION

Prior to the appointment of the Commission, a small information program was conducted by the former Drug Abuse Secretariat of the Depart-

* See Appendix A.2 *Opiate Narcotics and Their Effects* for discussion of immunoassay techniques.

† With the exception of LSD-PCP mixtures.

ment of National Health and Welfare. The federal Smoking and Health Program has been providing tobacco information, films and various teaching aids on a national scale for almost a decade, but almost no federal effort has been invested in alcohol information. Numerous provincial groups, most notably the Addiction Research Foundation of Ontario (ARF), but also the Office de la prévention de l'alcoolisme et des autres toxicomanies (OPTAT) of Quebec, and the Narcotic Addiction Foundation (NAF) of British Columbia have developed significant information and educational materials dealing with a wide range of drugs. In the past few years certain private groups, such as the Council on Drug Abuse (CODA), have also entered the field. ARF has for years been the primary Canadian source of scientific information in this area, and has regularly supplied such materials to individuals and organizations in all provinces and in numerous foreign countries. There has been little specific effort to coordinate the various drug information resources available in Canada.

PERSPECTIVES AND RECOMMENDATIONS OF PREVIOUS COMMISSION REPORTS

In the *Interim Report* we observed that there was an urgent need for some coordinated system on a national scale to collect, classify, index, evaluate and disseminate timely information on various aspects of non-medical drug use.* We stressed that there must be some efficient source of disinterested and authoritative opinion, independent of political pressures and responsibilities for law enforcement, to which those seeking information could turn for guidance for public policy, education, medical, scientific and personal decisions. We recommended that the creation of an appropriate national information program be given high priority. We acknowledged the important role of the news media in this area and recommended that the Federal Government keep the media as fully informed as possible of its own information about non-medical drug use. (See also Section XIV *The Mass Media* in this report.)

In the *Treatment Report* we noted the need for factual information and educational material for use and dissemination by community treatment services.† In addition to scientific and technical data, reliable information is needed regarding existing agencies which deal with various specific problems, including medical, legal, educational, and occupational situations. We suggested in the *Cannabis Report* that a centrally coordinated documentation, information-gathering and alerting network would greatly facilitate effective communication among researchers.‡ Because of the accelerating growth of scientific information on non-medical drug use, traditional modes of publication, communication and information retrieval have become increasingly inadequate. We suggested that international cooperation and co-

* *Interim Report*, pp. 224-234.

† *Treatment Report*, p. 94.

‡ *Cannabis Report*, p. 161.

ordination in this area might be effectively conducted through the World Health Organization.

In the *Interim Report* we observed that the development, collection and evaluation of technical information was one thing and the effective dissemination of processed information to the public for educational purposes another. These two functions typically involve different skills and expertise and, consequently, might best be carried out by different individuals or agencies. We felt that the national scientific agency which we recommended to conduct the Federal Government's coordinating and financial initiative in research should also be responsible for the collection, evaluation and communication of the resulting technical data. We discussed a number of mechanisms by which this information might subsequently be used in drug education or otherwise effectively disseminated to the public. We noted evidence that many young people lacked confidence in certain official sources of drug information, and that to be accepted such information might best be disseminated by local groups or individuals having high credibility with youth. We also discussed the Canadian Medical Association's suggestion for the formation of a coordinated network of regional non-governmental multi-disciplinary groups or "teams" to provide information, policy guidance and other services at the community level.

The division between the collection, evaluation and distribution of scientific and technical information, on the one hand, and the actual preparation of educational materials and the process of education, on the other, is admittedly sometimes ambiguous and necessarily arbitrary. Because of constitutional provision for provincial responsibility in the area of education, the distinction between drug information and drug education is of considerable significance in determining the appropriate role for the Federal Government in this area.

We noted in the *Interim Report* that:

In the Commission's view, the notion of drug education implies more than a mere random conveying of information; it implies selection, system, purpose and perspective. [P. 229.]

The objective of the information system is to provide timely scientific data in usable form as objectively as possible. The goal of the educational process is to present these data and other relevant information in a manner which prepares or enables individuals to make informed and wise personal choices. The provision of evaluated technical information is clearly within the federal sphere. Further, as we suggest in Appendix F.1 *The Constitutional Framework*, provincial responsibility for formal education in the school system does not preclude an important federal role in communications of general educational value and in collaboration on the development of drug educational materials and techniques. **As noted in the Interim Report, we feel that there should be a federal-provincial body for the development of**

drug education materials and methods, making use of information collected and evaluated at the national level. There are further observations on drug education in Section XIII of this report.

THE RANGE OF INFORMATION SERVICES NEEDED

An ideal national information network would be capable of providing various services to a wide range of users: scientists; medical and other treatment and rehabilitation personnel; legislators and government administrators; educators, teachers and students in various levels of school and university; industry; other private organizations; news media reporters; justice and law enforcement personnel; the clergy; librarians; and other citizens, including drug users of all ages. The potential users of such information can be considered in three groups with somewhat different, but overlapping, needs: (1) researchers and other scientific or technical experts; (2) persons who are not technical experts, but who deal in their work with certain aspects of non-medical drug use; and (3) the lay public.

It is clear that scientists must be aware of, and have efficient access to, the existing scientific literature and relevant data, and must be informed as to new developments, ongoing and anticipated research, and scientific meetings. The second group is more likely to need secondarily prepared materials such as selected bibliographies and book lists, critical summaries and reviews, text books and other evaluated or predigested information. The third group, the lay public, is most likely to receive information indirectly through individuals in the second category. A wide variety of intermediate sources involving further information processing and selection would undoubtedly be involved, including news media, formal drug education programs, and so on.

THE NON-MEDICAL USE OF DRUGS DIRECTORATE INFORMATION PROGRAM

As part of its overall information effort, in the fall of 1972 the Non-Medical Use of Drugs Directorate (NMUD) began work with the Health Protection Branch Library on a coordinated scientific and technical information network and data base in Ottawa. A computerized system was designed to provide specialized bibliographic searches of the scientific literature, and altering and up-dating services. Considerable progress was made towards creating the basic data bank, but many problems and issues remain to be resolved. The National Science Library services (e.g., Canadian Selective Dissemination of Information [CAN/SDI]) are presently available to the NMUD system. Direct on-line connections with the U.S. National Clearinghouse for Drug Abuse Information (NCDAI), Medical Literature Analysis and Retrieval Systems (MEDLARS) and other American services have been established. The immediate goal of the data base was to serve the

needs of NMUD personnel, although certain services for researchers and other groups were also intended and are currently being explored.

Plans were made at NMUD for data evaluation and further processing of scientific information for possible use in fact sheets, review articles, text books, audio-visual presentations, etc. In addition to the existing government communication agencies, such as the Canadian Broadcasting Corporation, the National Film Board and Information Canada, new federal and provincial information channels are being considered for dissemination of this information. NMUD has distributed special bibliographies and other information to certain research, treatment, and education groups, and has held a number of national conferences and meetings designed to stimulate and facilitate communication among workers in various areas. However, little substantial progress has been made in many aspects of the anticipated information programs, and in certain respects the NMUD system is still in the early stages of planning and development.

THE ROLE OF EXISTING INFORMATION RESOURCES

A considerable number of specialized drug information resources already exist in Canada and other countries. **It would not be advisable to attempt to duplicate these collections in a central data bank anywhere. Instead, the Federal Government should emphasize the development of a coordinated network of complementary information resources in Canada, establish open two-way communication with information centres in other countries, and proceed to identify and fill gaps in the collective system on a multi-lateral basis. Research and information in this area clearly transcend traditional provincial and national boundaries, and a major cooperative effort must be made involving various levels of government. We need to improve our ability to absorb and use information from foreign sources, and should avoid undue duplication of resources available to us from other countries. Additional funds must be made available for the rapid translation of important foreign language articles into one or both of the official languages. A standard but flexible multi-lingual international thesaurus of key retrieval index terms dealing with non-medical drug use is clearly needed.**

The major relevant information collections and services now existing in Canada include: the National Library, the National Science Library and certain federal departmental libraries and their information systems (e.g., CAN/SDI); the Addiction Research Foundation (ARF), Office de la Prévention de l'Alcoolisme et des autres Toxicomanies (OPTAT) and certain other provincial agencies; university libraries (e.g., Laval); the Commission library; and the NMUD data base currently being developed. Primary foreign resources include the various U.S. National Institute of Health clearinghouses (e.g., NCDAI), the U.S. National Library of Medicine (e.g., MEDLARS), the U.S. Library of Congress, the Student Association for the Study of Hallucinogens (STASH), the Rutgers Alcohol Centre (e.g., CAAAL), the

Smithsonian Institution, the Fitz Ludlow Memorial Library, the various United Nations divisions and libraries, the Institute for the Study of Drug Dependence in London, the Automated Subject Citation Alert (ASCA), *Excerpta Medica*, and the various sociological, psychological, biological and chemical abstracts. The major pharmaceutical companies in various countries have significant specialized information collections as well.

The Federal Government should maintain an up-to-date inventory (e.g., indexed lists of project titles, researchers and abstracts) on current drug research in Canada and other countries. Considerable progress in identifying and listing Canadian scientific efforts has been made by the National Research Council through the National Science Library's Information Exchange Center (IEC). **Further efforts should be made to include provincially and privately funded and conducted research as well as university projects financed through federal sources.** The Ministry of State for Science and Technology (MOSST) is extending the present coverage through the phased establishment of an Inventory of Scientific Activities, incorporating the functions of the IEC. **Descriptions of publicly funded research projects should be routinely published and made available to the public.**

A comprehensive catalogue of the total holdings in the various Canadian drug information collections must be established and an efficient referral system developed. The National Library and the National Science Library maintain a general union catalogue of major library holdings of books and periodicals in the country. **Additional special effort will be necessary to obtain adequate coverage of the primary non-medical drug use collections in Canada.**

Coverage of the social science and humanities literature by the available technical abstracting and information services around the world is generally inadequate. Attention is being focussed on this discrepancy in some countries, but much remains to be done to remedy this situation. **The Federal Government should ensure that special effort is made to improve Canadian communication in this area.** Recent efforts by the Social Science Research Council and the Association of Universities and Colleges of Canada to set up a data clearinghouse for the social and behavioural sciences should receive further support and guidance to ensure adequate coverage of Canadian non-medical drug use research needs in this area.

GOVERNMENT STATISTICS

There is a considerable body of national information on non-medical drug use available or potentially available to the Federal Government from its law enforcement, corrections, health and other statistics and activities. The Commission has had access to a great deal of useful information made available by various government departments, and has been impressed with the potential value of some of the existing federal data sources. Of particular interest are the drug sections of the Statistics Canada publications, *Mental health*

statistics and *Causes of death*, the data from the Poison Control and Drug Adverse Reaction Programs, the Health Protection Branch drug analysis reports, various drug production, distribution and medical prescription data, and law enforcement and correctional statistics. Information from these and other federal and provincial data sources are discussed in detail in the various appendices which follow. Certain problems with the data are identified in those discussions and, in some instances, specific suggestions are made for improving the statistics.

In many cases, serious methodological, technical and practical problems limit the usefulness of the national government statistics presently available. **We feel that a special effort should be made to improve the quality of drug-related data and to coordinate the collection and interpretation of related federal statistics.** The frequent inconsistency in format used in reporting associated national data, even within the same department, and alternate use of fiscal and calendar year summaries often renders comparison and interpretation difficult. There is a great need for more uniform reporting of law enforcement, justice and correctional statistics. The delays involved in the present systems for the collection, collation, basic analysis, and publication of national statistics greatly reduce the value of the information. **Greater effort should be made to automate and otherwise speed up the processing of such data.**

If a major effort were made to generate more valid and useful national statistics, additional funds and staff would be necessary at various levels in the information collection and distribution process—often from the initial data source on up to the final analysis and publication stage at the Federal Government level. Such an endeavour would require considerable federal-provincial cooperation. In the health and criminal-justice areas, for example, national statistics are, in part, based on data abstracted and coded by provincial authorities from local reports, and consequently the Federal Government has little direct control over many basic aspects of the data.*

The International Classification of Diseases (ICDA) coding system, currently employed in the collection of much national health and death data, is in some respects ambiguous and inappropriate for the present North American phenomenon of non-medical drug use.† **The Federal Government should work for appropriate revision of the classification system on an international scale, and proceed immediately to refine the presently available categories for future national statistics.**

Although various collection, coding and communication limitations restrict the present usefulness of the non-medical drug use data available through the Poison Control and Drug Adverse Reaction Programs, these information systems provide a potentially invaluable source of epidemiological

* With regard to national health statistics, see Appendix A and notes *e* and *m* to that appendix.

† See Appendix A and notes *e* and *m* to that appendix.

and pharmacological data.* We recommend that additional funds be made available to increase the utility of these programs, and that the Federal Government explore the feasibility of an integrated non-regulatory agency with a broader mandate for collecting, analysing, interpreting, and disseminating national statistics on adverse effects of chemicals on the human body.

In many instances there are inadequate communication channels or even explicit restrictions which inhibit the effective analysis and use of the available national statistics. In certain areas (e.g., information on drug-related deaths) provinces may restrict the subsequent use of detailed data provided to the Federal Government. Clearly, the citizen's right to privacy must be taken into careful consideration before data can be released for analysis. However, we feel that much could be done to improve government statistics, to make them more openly available and timely, and to facilitate and encourage the scientific analysis and communication of such information by independent and government researchers. Federal and provincial provision should be made for the release of health records and vital statistics for research purposes in a form which does not disclose the identity of the patients or subjects involved.

The Non-Medical Use of Drugs Directorate might usefully work with the various government agencies involved to monitor and improve national non-medical drug use statistics and to aid in their routine interpretation.

FURTHER OBSERVATIONS AND RECOMMENDATIONS REGARDING THE NMUD PROGRAMS

We recommend that the preliminary efforts of the Non-Medical Use of Drugs Directorate to develop a special data base and information network receive further support, and that NMUD be given responsibility for the primary Federal Government initiative in ensuring adequate non-medical drug use technical information services on a national basis, following the general principles outlined in this section of the report.

We specifically recommend that the NMUD program provide national coordination among existing Canadian information resources, including both the specialized drug collections and the various general components of the overall federal STI system, and that it be responsible for identifying and filling the gaps in the collective network. Furthermore, NMUD should co-ordinate and improve access to relevant drug data collections and services in other countries. For example, certain major foreign alcohol and tobacco resources have not been tapped; they should be linked with the network soon.

Immediate action should be taken to establish working links with the major Canadian non-federal resources—in particular the facilities of the Addiction Research Foundation and the collections of OPTAT and Laval University. The holdings of the library and documentation services at ARF have recently been combined, and are in immediate need of further uniform

* See Appendix A and note *f* to that appendix.

indexing for retrieval. **The Federal Government should provide consultation and financial support to ensure the efficient and continued availability of the ARF collection to Canadian researchers and other workers in the area.**

The services of the national information system must be available at low cost to the user. Access to information and referral to data sources must be provided in a way which minimizes the problems often caused by geographic distance or institutional affiliations. Reasonable service must be made available from coast to coast. The services should be well advertised to the various potential users, and adequate instruction must be provided to enable users to make effective use of the system.

Further study will be necessary to determine which aspects of the total national drug information system would best be administered under central control and which components would more appropriately be included in an associated decentralized network. **We support in principle the overall emphasis on decentralization in Canada's general STI policy.**

As noted earlier, in the *Interim Report* we stressed that the national agency responsible for research and information be free of political pressure and responsibility for law enforcement, and perhaps independent of government in general. NMUD has no law enforcement role, but is not in principle free from potential political interference. **We feel that a system which coordinates research and data resources, and distributes technical information to researchers and other experts can be adequately developed within the present NMUD government context. However, additional effort should be made to ensure that the process of evaluating data and preparing summaries and reviews is appropriately independent. We suggest that such work be supervised, and the resulting materials regularly reviewed, by an independent federal-provincial expert committee made up predominately of non-government scientists. The dissemination of the information should be subject to the committee's approval.**

Some form of frequent national report or newsletter providing a general overview of current developments in non-medical drug use information would be invaluable to workers in the field. *The Journal*, a monthly drug information newspaper published by the Addiction Research Foundation of Ontario, has filled a major communication gap in this area. With further development, including more specific bibliographic documentation, it could provide an even more effective vehicle for rapid information dissemination to a wide range of people. **The Federal Government should explore with the Foundation and other provincial authorities the possibility of supporting or "nationalizing" The Journal on a federal-provincial basis.**

There is an apparent lack of appropriately trained science writers and reporters capable of effectively communicating technical information on drug use to non-experts and the general public. **NMUD should support specialized training in this important area.**

The Federal Government should explore, with the provincial governments and the various medical bodies, ways in which medical schools and associations can improve the education of physicians with respect to general, as well as treatment, aspects of non-medical drug use. Family doctors and general practitioners are commonly turned to for information in this area, in spite of the fact that most physicians have had little or no special education pertaining directly to non-medical drug use. As well, general non-science courses exploring the many facets of drug use in society would be a valuable addition to the general undergraduate and graduate curricula of universities in Canada.

NMUD should support scientists in the preparation of relevant literature review articles and books on a regular basis, and should regularly organize or fund conferences and meetings to maximize rapid communication. In addition, the Directorate might usefully provide a concise annual public report summarizing significant developments in its own activities; other Canadian research, education and treatment efforts; government policy and administrative regulations; various federal and provincial government statistics; and major foreign information.

NMUD should actively participate in the further development of Canada's general national and international scientific and technical information policy, to ensure adequate awareness and coverage of present and future needs in the field of non-medical drug use.

We suggest that the Federal Government's research and information policies and activities in this area be critically reviewed by an independent group, such as the Science Council, within three years of the release of this Final Report, and at regular intervals thereafter. Such evaluation should be made public.

NOTES

1. Science Council of Canada: *Towards a National Science Policy for Canada*, Report No. 4, (Ottawa: Queen's Printer, 1968); *University Research and the Federal Government*, Report No. 5, (Ottawa: Queen's Printer, 1969); *Policy Objectives for Basic Research in Canada*, Report No. 18, (Ottawa: Information Canada, 1972); *The Role of the Federal Government in Support of Research in Canadian Universities*, Special Study No. 7 by John B. MacDonald, L. P. Dugal, J. S. Dupré, J. B. Marshall, J. G. Parr, E. Sirluck & E. Vogt, (Ottawa: Queen's Printer, 1969).
2. Senate Special Committee on Science Policy (The Honourable Maurice Lamontagne, P.C., Chairman), *A Science Policy for Canada*, Volume I, "A Critical Review: Past and Present," (Ottawa: Queen's Printer, 1970); and Volume II, "Targets and Strategies for the Seventies," (Ottawa: Information Canada, 1972). A third and final volume of the Committee's report series has been completed and is scheduled to be released to the public early in the fall of this year.
3. Association of Universities and Colleges of Canada (Louis-Philippe Bonneau & James Alexander Corry), *Quest for the Optimum*, Volume I, (Ottawa: Mutual Press Limited, 1972) and Volume II, (Ottawa: Mutual Press Limited, 1973).
4. Organization for Economic Co-operation and Development, *Reviews of National Science Policy*, (Ottawa: Queen's Printer, 1969).
5. See "SCITEC Forum on Science Policy: The Many Voices of Canada," *Science Forum*, Special Supplement 31, Volume VI, No. 1, February 1973.
6. Science Council of Canada: *A Policy for Scientific and Technical Information Dissemination*, Report No. 6, (Ottawa: Queen's Printer, 1969); *The Role of the Federal Government in Support of Research in Canadian Universities*, Special Study No. 7 by John B. MacDonald, L. P. Dugal, J. S. Dupré, J. B. Marshall, J. G. Parr, E. Sirluck & E. Vogt, (Ottawa: Queen's Printer, 1969); *Scientific and Technical Information in Canada*, Special Study No. 8, Parts I and II by J. P. Tyas and Associates, (Ottawa: Information Canada, 1972), pp. 1-28.
7. Canada, Task Force on Government Information, *To Know and Be Known*, Volume I & Volume II, (Ottawa: Queen's Printer, 1969).
8. Organization for Economic Co-operation and Development, *Review of National Scientific and Technical Information Policy*, (Ottawa: Information Canada, 1971).
9. National Research Council of Canada, *Reports of the President*, 1968-1969, 1969-1970, 1971-1972.
10. E. Polacsek, "A National Information System on the Non-Medical Use of Drugs," Unpublished Commission Research Paper, 1970; E. Polacsek, "Sources of NOMED Information," Unpublished Commission Research Paper, 1971; C. G. Farmilo, E. Polacsek, E. Hanna, L. Barash, G. Larsson & I. Stankiewicz, "Scientific, Technical and Social Information on Non-Medical Use of Drugs," Unpublished Commission Research Paper, 1971; R. D. Miller, "Scientific and Technical Information," Unpublished Commission Research Paper, 1973.
11. H. D. Beckstead & W. N. French, *Some Analytical Methods for Drugs Subject to Abuse*, (Food and Drug Directorate, Department of National Health and Welfare), August 1971.

Drug Education

In the *Interim Report* we made certain general observations concerning drug education. In particular, we suggested that it was necessary to tell the whole truth about drugs as far as humanly possible, that it was unwise to base drug education on a strategy of fear, and that drug education should be seen as part of general education for living. We said that the purpose of drug education should be to provide the basis for informed and wise personal choice. In a similar vein, we said that drug education, as part of general education, should have as its objective the kind of understanding that will permit an individual to live wisely, in harmony with himself and his environment.

Since the *Interim Report* we have attempted to learn about various efforts in Canada to develop programs in drug education and also to profit from experience elsewhere, particularly in the United States. In the last few years there has been a second look at drug education and the extent to which we can rely on it to achieve our objectives of social policy in relation to non-medical drug use. There has been difficulty in finding any broad measure of agreement on objectives, suitable content, and appropriate measures of effectiveness. In many quarters there has been severe criticism of current drug education efforts on this continent, and even scepticism about what we can hope to achieve with this form of social response.

The Commission conducted a survey of the drug education policies of provincial educational authorities and local school boards across Canada,¹ made an in-depth study of the programs in certain schools,² questioned students on their response to drug education,³ and identified some of the more innovative and promising programs.⁴ What the Commission learned from these studies is summarized here.

Provincial authorities provide general support and guidance for local school boards in the development of drug education programs, but programs are developed at the local level and vary considerably in their approaches. Programs are adapted to local circumstances and requirements. When the Commission made a survey of 584 local school boards in 1971 (of which

369 or 63% responded), less than half of the respondents said they had drug education programs or specific policies concerning drug use in the school.⁵ The proportion with drug education programs may be assumed to have increased considerably since then.

The two main goals of drug education programs, as reported by the local boards, were information and counselling. Approximately half of those replying said they wanted to provide students with sufficient information so that they could make their own decisions based on knowledge. Others said they wanted their students to know the dangers of drug use. About 20 per cent of the responding boards were interested not only in providing their students with information but in counselling them with respect to drug use, as well as general values and problems in living.

About two-thirds of the boards which provided drug education did so through the health education course of studies. About 20 per cent provided it in other subject areas, usually guidance, and the remainder presented it as a separate course of study.

As for methods, about three-quarters considered student counselling important. The same proportion favoured small discussion groups and information dissemination in the form of lectures and pamphlets.

With respect to selection and training of teachers for drug education, about half the boards which provided drug education thought in-service teacher training important and provided it. About half of these chose teachers on the basis of demonstrated empathy with students or because they volunteered, while the remainder simply designated certain teachers, usually those who taught the course of which drug education was a part. Resource personnel or materials used in teacher training, in the order of preference given by reporting boards, were the following:

1. physicians or other medical personnel;
2. printed or audio-visual materials;
3. law-related personnel, especially policemen;
4. a specialized agency, such as an addiction foundation;
5. former and current drug users;
6. students;
7. parents;
8. personnel from innovative services and street-workers.

With respect to evaluation, about one-third of the reporting boards said that they evaluated their drug education programs. The main method of evaluation was seeking the opinions of students as to the effectiveness of the program. About three-quarters of the boards considered their programs to be moderately effective or better. The degree to which certain criteria of evaluation were favoured by the boards was as follows: increase in

students' understanding and awareness (94.1%); increase in parents' understanding and awareness (64.7%); students with drug-related problems assisted (58.8%); attainment of specified information level (47.1%); non-users deterred from starting use (41.2%); overall decrease in drug use (29.4%); overall decrease in harmful use of drugs (5.9%).

The replies of the boards indicated that efforts in drug education were concentrated in grades seven to nine, although students in grades below and above this range were included by some respondents. Many of the drug education programs that came to the attention of the Commission were directed at junior high school students.

Researchers for the Commission conducted an in-depth study, by direct observation and discussion with teachers and students, of the drug education program in certain selected schools in a large metropolitan area.⁶ The study covered three high schools and one junior high school. The researchers concluded that drug education as a part of health education and physical education courses was a failure. The reasons given were that health education and physical education were regarded as "token" courses, and that the teachers were rarely found to be capable of dealing effectively with the topic of drugs and with the personal non-drug issues that surround drug use. The study was also critical of special programs of drug education in auditoriums with guest speakers and films, at which attendance was compulsory, and in which the tone was "strongly and naively anti-drug". Most teachers who were interviewed agreed that there was little chance of success with this approach. The study concluded that drug education should not be propaganda for the traditional culture nor be the indoctrination of a particular value position. Information in the form of short, free pamphlets was thought to be useful. The study stressed that drug education should be placed in a more general perspective, related to the other problems of personal adaptation with which students are more generally concerned.

The researchers were critical of certain aspects of the system of general education which, they felt, led to boredom and other states of mind conducive to drug use. In particular, they stressed that students should be given more free time to pursue study interests of their own, with assistance from the teaching staff. Emphasis was also placed on the need for a wide range of practical information. The study referred to this free period and the supporting organization for it as "The People's Period" and "The People's Department". It also suggested an "Information Rack" to provide information on such matters as drugs, birth control, family problems, personal counseling, welfare, legal aid, housing, venereal disease, and general medical clinics. Some of these suggestions were adopted and put into practice by a local school board during the course of the Commission's work.

A survey of the response of high school students to drug education revealed some interesting conclusions.⁷ The first was that there was a low rate of response to (or interest shown in) questions about drug education as compared to questions concerning other matters, such as the students'

backgrounds, their values, and their feelings about school life and their teachers. The main approaches to drug education reported by the students were special assemblies and films and lessons integrated into health or physical education classes. Only about six per cent of the responding students said that they were satisfied with their drug education programs, although about 48 per cent said they thought that drug education had increased their knowledge of drugs.

Students ranked drug education fourth as a source of information about drugs, well behind the first three choices: friends, television, and newspapers. The relative reliance on various sources of information differed according to the age of the students. More than 80 per cent of the students in junior high school grades relied on drug education to some extent, but only 25 to 30 per cent of the students in the senior high school grades mentioned it as a source at all. Almost 90 per cent of the senior high school students, but only about 60 per cent of the junior high school students, relied on their friends as one source of information. More of the younger students relied on their parents for information than did the older students, and more of the older students relied on their personal experiences for information than younger students did. (For a further discussion of this subject, see Section *XIV The Mass Media.*)

Almost three-quarters of the students said there was no teacher to whom they could, or would, go if they needed information about drugs. At the same time, about 70 per cent of the students thought drug information was available to them and that it would be useful. The kind of information that was most desired was information concerning the effects of drugs and the actual risks involved in various kinds of drug use.

As to the effects of drug education, slightly more than half of the students considered drugs other than cannabis to be more harmful after they had had drug education than they had thought before. The opinion of about a third remained unchanged, and the remainder considered the drugs less harmful than they had before drug education. Again there were variations according to the age of the students. Younger students were more likely than older students to consider the drugs more harmful than they had before drug education.

The most promising education programs which the Commission was able to identify in Canada place drug education in a broad perspective as part of the development of understanding about how to live effectively.⁸ There is emphasis on developing the capacity for finding viable alternatives to drug use. One program stresses the importance of "living skills". It suggests that the inability to avoid drug-related problems may be due in some measure to a poorly developed repertoire of the skills which enable the individual to fill free time with constructive alternatives to drug use.⁹

There has been little progress made with the problem of evaluation of drug education programs. Most of what is spoken of as evaluation consists

of the impressions of a program's effectiveness from students and teachers. Indeed, there is some question as to how far there can be effective evaluation of drug education. We may test retention of information. We may test apparent effects of drug education on attitudes and behaviour. For this purpose, it would be optimal to conduct long-term follow-up studies with matched control groups, and even then we would be confronted with the very perplexing problem of assigning causal significance to the various factors which can influence or are otherwise associated with attitudes and behaviour. Although great emphasis is currently being placed on the necessity of evaluating drug education, adequate techniques for assessing its ultimate effects upon behaviour have yet to be developed and applied. In effect, we are presently acting on certain unverified assumptions concerning its efficacy with regard to various, often ill-defined goals and criteria.

These assumptions have been increasingly challenged in recent years, particularly in the United States, where, it is fair to say, there have been signs of growing disenchantment and even disillusionment with drug education. It is difficult to know how far the criticisms of drug education in the United States would be true of drug education in Canada. Our own impression is that there has not been in Canada anything comparable to the American proliferation of drug education materials, ranging in quality from apparently excellent efforts to obviously inadequate and possibly harmful programs. From all accounts, there has been in the United States such a great outpouring of inferior materials and programs that many have called for a halt or a "moratorium" on drug education efforts to give time for the selection of good materials and the development of wider agreement on objectives and methods. Characteristically, Americans appear to have embarked on a great variety of drug education programs with greater gusto than Canadians, with the inevitable excesses that such enthusiasm brings. Because of Canada's smaller population and fewer jurisdictions, it is easier for good drug education programs to gain in influence through imitation.

In addition to criticism of the quality of drug education materials and programs in the United States,¹⁰ there have been doubts raised about the efficacy of drug education as an influence on behaviour.¹¹ Critics have said that we have placed too much reliance on it. They point out that information concerning the dangers of cigarettes has failed to bring about a significant decrease in the amount of cigarette smoking. These critics say that people's behaviour is not as much influenced by information as we might like to think. They point to more significant and longer-lasting influences in the personality and social background of the individual. There is also a suspicion that people may, by a process of "selective attention", avoid the impact of information that does not support their choice of behaviour. In other words, we cannot even be sure that the information reaches those for whom it is most appropriate. It has been observed, however, that we have not seriously begun to make use in drug education of existing scientific knowledge concerning the techniques of influencing behaviour.¹²

Apart from these questions concerning the positive efficacy of drug education, there is concern that it may often serve to arouse an unhealthy curiosity or interest in individuals who might not otherwise be attracted to particular forms of drug use. This is undoubtedly a danger in all discussion of forbidden things, particularly with young children. There is also the fear that while persons who are familiar with drug use are likely to have more credibility and therefore more effective educational impact than non-users, they may in many cases reinforce attitudes that are favourable to drug use.

Notwithstanding these doubts concerning the efficacy of drug education and these fears that it may sometimes produce harmful results, we believe that we should persist with it as one of several means of helping to develop the understanding and the capacity required to enable the individual to deal effectively with the personal challenges presented by drugs. As with any other kind of human problem, we have more to fear from ignorance than from knowledge in the field of non-medical drug use. Even if drug education is more effective in conveying information than in influencing attitudes or behaviour, its informational function is essential. Individuals cannot be said to be adequately equipped to make wise choices if they do not have the requisite informational basis. Helping our young people to develop an adequate understanding of the phenomenon of non-medical drug use in its essential implications for personal welfare is a duty that we owe to them.

At the same time, we must see the process of drug education in a much broader context than the formal program in the school system. We must not expect drug education in the schools to be able to overcome the lack of other constructive influences. Parents must be involved in drug education as well as teachers. Much of the knowledge about ourselves and how to live that is relevant to the ability to cope effectively with the challenges presented by drugs can only be imparted effectively in the home. This is the subject-matter of a later section of our report.

Perhaps a final word about fear is in order. When we said in our *Interim Report* that we did not think drug education should be based on a strategy of fear we had in mind a program that started out with the stimulation of fear as its objective. The notion of a strategy of fear implies that one will set out to inspire fear and to shape the message accordingly. Obviously, one should not distort the facts to produce fear, but if the facts objectively stated give rise to fear this is not a consequence to be avoided. We did not mean to suggest that fear resulting from a consideration of the objective facts was a bad thing.

There is a danger that in raising too great expectations or in being excessively critical about drug education we may inhibit or paralyse very worthwhile efforts. The same stimulation of self-doubt by a host of experts has played havoc in the field of child-rearing. It would be a pity if teachers were made unduly self-conscious or discouraged by all these second thoughts about drug education. It is very easy to set unreal standards. Only good can

come from a teacher who sympathetically assists students to develop a greater understanding of themselves and the problems of effective living, of which drugs are only one aspect. What is important in the long run is not the detailed, technical knowledge (although this should be imparted as accurately as possible) but the understanding of self and the role which drugs play in our lives. We have to come to this understanding by ourselves; drug education is only one of several means by which we may acquire it. With all its limitations it can play a useful role if it is carried out with candour and an awareness of the extent to which our individual values will inevitably determine our choices. As we said in our *Interim Report* the goal cannot really be more than to assist the individual to see where his true personal interest lies. In the final analysis we have no alternative but to place our faith in the value of this kind of understanding.

Reference has been made in the preceding section to the federal role in relation to drug education.

NOTES

1. Fred Walden and Barbara Myers, "An Analysis of Resources and Services Provided by School System Drug Education Programs," Commission Research Project, 1970-71.
2. Jeff & Hadie Solway, "Drug Education, Information, and Services in Selected Toronto Schools," Commission Research Project, 1970-71.
3. Fred Walden and Barbara Myers, "Students and Drug Education," Commission Research Project, 1971.
4. Fred Waldon and Barbara Myers, "Analysis of Courses of Study in Drug Education in Elementary and Secondary Public Schools in Canada," Commission Research Project, 1970-71.
5. Barbara Myers, "Drug Education in Canadian Schools: Results of a Survey of School Boards," Unpublished Commission research paper on the Project referred to in note 1 above.
6. Jeff and Hadie Solway, "Report on High School-Based Drug Information, Education and Services," September 1970 and "The Crisis in Our Schools," April 24, 1971, Unpublished Commission research papers on the Project referred to in note 2 above.
7. Barbara Myers, "Toronto Students and Drug Education," August 13, 1971, Unpublished Commission research paper on the Project referred to in note 3 above.
8. Christine Lohar and Barbara Myers, "Background Papers on Drug Education in the Schools," Unpublished Commission research papers (May 1971) on the Project referred to in note 4 above. The program Moods Substances People of the Toronto Board of Education has been adopted by several other Boards. Two of the most interesting programs have been introduced by the Calgary and North York (Toronto) School Boards; Kenneth Low, "Intoxicant Problem Avoidance Capability, Instructions (Living Skills)," Calgary, Alberta; M. H. Coffeng, "A Submission to the Commission on Approaches in Education to Drug Concerns," Borough of North York Board of Education, Ontario, summer 1972.
9. Kenneth Low, see note 8 above.
10. Peter G. Hammond, "Why Drug Abuse Education is Failing in America," Paper delivered at the 30th International Congress on Alcoholism and Drug Dependence, Amsterdam, September 1972.
11. Amitai Etzioni, "Human Beings Are Not Very Easy to Change, After All," *Saturday Review*, Vol. 55, No. 23 (June 3, 1972), reprinted in *Grassroots* (September 7, 1972, supplement); Richard H. Blum, "A New Perspective on Drug Education," Address to the National Coordinating Council on Drug Education, reprinted in *Grassroots* (August 1972, supplement); Seymour Halleck, "The Great Drug Education Hoax," *The Progressive*, 1970, Vol. 34, reprinted in *Grassroots*, (January 1972, supplement); John D. Swisher and

Richard W. Warner, Jr., "A Study of Four Approaches to Drug Abuse Prevention," Final report on Project No. 0B083, U.S. Department of Health, Education and Welfare, July 31, 1971.

12. Reginald G. Smart, "Factors in the Effectiveness of Drug Education," Paper delivered at the 30th International Congress on Alcoholism and Drug Dependence, Amsterdam, September 1972.

Section XIV

The Mass Media

In Section III *The Causes of Non-Medical Drug Use*, we made some general observations concerning the role of the mass media of communication. As we suggested there, it is probably impossible to accurately determine the full effects of the media on attitudes and behaviour. An attempt may be made to determine how much people retain the impressions they receive from the media. They may be asked their opinion as to the extent they believe the media have influenced their conduct, but they may in fact be mistaken in their assignment of causal significance. Controlled experimental studies of the effects of the media, under natural conditions, would be extremely difficult if not impossible to conduct, because of the obviously complex interaction of a multitude of seemingly uncontrollable factors which influence attitudes and behaviour.

A significant role of the media which must necessarily be regarded as having causal effect is to make something known that would not otherwise be known to the individual. Without knowledge of a thing there can be no curiosity or desire concerning it. Thus, an important question is the extent to which the media have introduced individuals to knowledge about drug use (and in particular, non-medical drug use) which they would not have otherwise obtained.

In its national surveys¹ the Commission attempted to determine the relative importance of the media as a source of first information about drugs. Of course, the fact that a person first learned about certain drugs from the media does not necessarily mean that he would not have eventually obtained equivalent information from other sources. The Commission's national adult survey (based on a sample of households) indicated that the media ranked in the following relative importance with friends and ac-

quaintances as the source of first information about certain psychotropic drugs:

SOURCE OF FIRST INFORMATION ABOUT DRUGS

<i>Drug</i>	<i>From Media (%)</i>	<i>From Friends and Acquaintances (%)</i>
Hashish	58	8
LSD	68	7
Marijuana	62	10
Speed	47	6
Amphetamines	26	4
Barbiturates	37	6
Diet Pills	29	10
Solvents	53	9
Sleeping Pills	34	11

It should be emphasized that the sample in the national survey of households was composed mainly of adults who would presumably have less contact than younger people with friends using drugs whose possession is prohibited. The Commission's surveys indicated that the media were less important for high school students as a source of first information about drugs. Among those high school students who had ever used drugs non-medically, 27 per cent first learned of drugs from the media, while 62 per cent first learned from their friends and acquaintances. Among the non-using student population, 43 per cent first heard of drugs through the media and 28 per cent from friends and acquaintances.²

A pilot study to attempt to determine some of the salient environmental influences which may affect drug use among the young was undertaken in 1970 in California by Dr. Donald L. Kanter,³ with special attention to the role that television advertising may play. In each of three phases of the study, 622 students from grades five, seven and eleven were asked to: a) recall the advertisements they remembered in their daily television viewing and radio listening; b) state their attitudes towards drugs and other related factors; c) view six advertisements, after which their general receptivity was studied.

In summary, the study found that advertising had very low salience among the students, when compared to other environmental influences. Most students felt that peer group influence and curiosity were more closely related to the first use of illegal drugs. The study also concluded that there is no indication that pharmaceutical advertisements were easier to recall than those of other heavily advertised products, although the students felt that advertising was a relatively strong influence on their feelings about medicine, but not about marijuana or other illicit drugs. The study noted, however, that fifth grade students tended to react most positively and least negatively towards advertisements for pharmaceuticals and cigarettes, and the same group ranked television programs as a relatively strong influence upon their

general feelings and knowledge of marijuana and other illicit drugs, a fact which was not stated by the older students in the study group. The youngest students tended to find the pharmaceutical and cigarette advertising claims more believable than the older students.

A number of the students, especially those in grade seven, felt that the advertisements for stimulants and depressants could lead to misuse of the product, and users of marijuana and 'pep pills' seemed to be more receptive and less negative to the six advertisements than were the non-users.

Kanter concluded that while advertising is not, by itself, responsible for student behaviour towards drugs and other products, substances and activities, it is potentially an influencing agent, particularly on the youngest students. He suggests that advertising functions as a reinforcing element in the entire complex of drug attitudes among the young by implying, symbolically, to the users that: "Everyone turns on in his own way." This, he points out, might be an important rationalization for the furtive user. In summary, he suggests that "it may just be that pharmaceutical advertising is one more cultural prop in the maintenance of favourable attitudes towards drug usage among the young". It is, after all, the elementary school children who tend to be most receptive and least critical of advertisements.

The significance of any impact that advertising may have on youth in relation to non-medical drug use does not appear to lie in the direct effect of individual commercial messages. Rather it appears to flow, as with adults, from the recurrence of themes which suggest easy access to material objects for alteration of the physical or psychological functioning of the human body. This message, in turn, appears to reinforce a growing reliance on the biochemical development of substances capable of controlling such aspects of human functioning as sleep, response to tension or coping with fatigue.

Advertisers have not hesitated to use drug-related themes to promote their products in recent years. The use of psychedelic themes, visually or verbally, characterized a good deal of advertising during 1968 and 1969. However, by 1970, many advertisers were convinced that these themes were not making an impact for their products in the market-place and, to a large extent, they had abandoned them, recognizing that in order to be effective, advertising must choose the style appropriate to the audience.

There is no evidence of direct encouragement of illicit drug use in advertising, but there may be some indirect influence on the phenomenon through the emphasis that advertising places on quick and easy solutions to such everyday problems as headaches, stress, fatigue and interpersonal strains.

As we suggested earlier, there is little empirical evidence documenting the influence of advertising on the behaviour of those exposed to it, but it is not unreasonable to assume that there is some effect. Otherwise, the very large investment in advertising can only be described as wasteful and illogical. In 1970, for example, Canadian advertisers invested a total of ap-

proximately \$330 million in radio, television, newspaper and magazine advertising.⁴ Of this amount, about \$84 million, or 25 per cent, was spent on advertisements for alcohol, tobacco and over-the-counter pharmaceutical preparations.⁵

If the objective of social policy with respect to non-medical drug use is to reduce such use as much as possible, the question that presents itself is whether controls should be imposed on the advertising of drugs on the assumption that advertising encourages such use. The issue arises particularly with reference to the advertising of over-the-counter drugs, alcoholic beverages, and tobacco. Such advertising is thought to encourage a general climate of acceptance of and reliance on mood-modifying substances.

The jurisdiction to regulate advertising is an aspect of the jurisdiction to regulate trade and commerce, which is divided in Canada along the following general lines: the Parliament of Canada has exclusive jurisdiction with respect to trade and commerce which extends beyond the boundaries of a single province, and the provinces have exclusive jurisdiction with respect to trade and commerce which is confined to their respective territories. There is some overlapping in the federal and provincial jurisdictions, and in particular, federal jurisdiction extends to matters of intraprovincial trade and commerce the regulation of which is necessary to the effective exercise of federal jurisdiction over extraprovincial trade and commerce. (See Appendix F.1 *The Constitutional Framework*.) Conversely, enterprises carrying on extraprovincial trade and commerce are subject to a variety of provincial laws affecting the business which they carry on in a particular province. The Federal Parliament also has certain special bases for a regulation of advertising. It effectively controls advertising on radio and television in the exercise of its jurisdiction over these broadcasting media. It may also base the control of certain kinds of advertising on its criminal law power, in the interests of public morality, order, safety, health, and the prevention of fraud. The criminal law power affords a basis (in addition to regulation of trade and commerce) for controls over the advertising of drugs, including alcohol and tobacco. The extent to which there is a corresponding or comparable provincial jurisdiction for the protection of health is not so clear, but it appears to be generally recognized that the provinces may restrict the availability of substances in the interests of health (see Appendix F.1) and that restrictions on advertising may be related to such a legislative purpose. Provincial restrictions on liquor advertising have been recognized as a valid aspect of liquor regulation, and provincial restrictions on the advertising of tobacco have been held to be valid as a regulation of local trade and commerce.⁶

The advertising of narcotics,⁷ controlled drugs,⁸ and Schedule F prescription drugs⁹ to the general public is prohibited. In effect, advertising of these drugs is confined to professional journals. Over-the-counter drugs and proprietary or patent medicines may be advertised to the general public, but subject to certain limitations. The *Food and Drugs Act* provides that no

person shall advertise any drug to the general public as a treatment, preventative or cure for any of the diseases, disorders or abnormal physical states mentioned in a schedule to the Act.¹⁰ These include "anxiety state", "depression", "hypertension", and "hypotension". The Act further provides that no one shall advertise a drug in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character, value, quantity, composition, merit or safety.¹¹ The Act also provides that the Government may make regulations concerning the advertising of a drug "to prevent the consumer or purchaser thereof from being deceived or misled as to its quantity, character, value, composition, merit or safety or to prevent injury to the health of the consumer or purchaser..."¹² This suggests the nature of the matters with which the Government is to be concerned in its regulation of advertising.

*The Proprietary or Patent Medicine Act*¹³ also contains provisions concerning the advertising of the substances covered by it. As with the provisions in the *Food and Drugs Act* they are chiefly concerned with truthfulness. A proprietary or patent medicine must not be claimed to be a cure for any disease, and any advertising of it must not contain any false, misleading or exaggerated claims.¹⁴

The regulations of the Canadian Radio-Television Commission require that the advertising on radio and television of drugs which are governed by the *Food and Drugs Act* and the *Proprietary or Patent Medicine Act* must receive the prior approval of the Department of National Health and Welfare and a representative of the Commission.¹⁵ In the exercise of this review the Department of National Health and Welfare is chiefly concerned, in accordance with its legislative framework, with truthfulness and proper disclosure. It does not attempt to interfere with the general tone of such advertising, insofar as it may have a bearing on the general encouragement of drug use.

The issue arises as to whether there should be a stricter control exercised over the advertising of over-the-counter drugs and patent or proprietary medicines. Many of these products, such as analgesics, cough suppressants and antihistamines, serve a useful function. It is not practicable that they all be made subject to the requirement of prescription because of the additional expense and inconvenience that would be caused to consumers. So long as over-the-counter preparations serve a useful function, for example, in the relief of pain and allergy, it is desirable that accurate information concerning their uses and any dangers be made available to the public. There would be more harm than good in a lack of adequate information concerning these medications. On the other hand, much of the advertising of these substances, by its general tone, is calculated to encourage reliance on chemicals to relieve discomfort of various kinds. **While a total prohibition of the advertising of such substances would not appear to be desirable, we recommend that the federal authorities be empowered and encouraged to exercise a closer control over the general tone of such**

advertising. It should be confined to a truthful, matter-of-fact description of the use of these substances, purely to advise people of their availability and not to encourage their use as such.

The Canadian Association of Broadcasters is to be commended for their decision to ban all advertising of drugs, including proprietary medicines, to children.¹⁶

The most significant advertising of drugs today is unquestionably that which is directed by pharmaceutical manufacturers and distributors at the medical profession. Until fairly recently, the Department of National Health and Welfare has not concerned itself particularly with such advertising, relying on the medical profession to monitor it for truthfulness. There has been no attempt to deal with the extent to which the volume and general tone of such advertising encourages prescribing by physicians and the total amount of drug consumption for medical purposes. There is evidence, however, that the Department is showing greater concern about this problem. The Department has noted that about 75 per cent of the drugs on the market were not available 15 years ago, and that about 50 per cent of the doctors practising today have graduated within this same period.¹⁷ The conclusion that is being drawn is that doctors are receiving most of their education in the use of drugs from the representatives of pharmaceutical manufacturers. In consequence, the Department has begun to make a much closer study of the advertising literature and practices of these companies. **We recommend that effective controls be established over the nature and quantity of the advertising directed by pharmaceutical manufacturers and other distributors at the medical profession, including the use of samples. The Federal Government should take steps, in consultation with the pharmaceutical industry, to encourage a general reduction in this kind of promotion.**

Generally, self-regulation is to be preferred to government regulation because it can adjust more flexibly and realistically to operating necessities. Matters of taste and general tone and emphasis cannot be dealt with effectively by formal rules. They call for the continuous exercise of judgment within a context of general criteria or guidelines. Some consultative mechanism should be established, involving representatives of government and industry, with the objective of developing an advertising climate that will avoid as much as possible encouraging reliance on drugs, whether for medical or non-medical use.

The general jurisdiction to regulate the advertising of alcoholic beverages is provincial as an aspect of the power to regulate the sale of such substances. The provinces have adopted provisions concerning liquor advertising which vary considerably in their restrictiveness. In New Brunswick and Prince Edward Island all such advertising originating in the province is prohibited. The other provinces permit such advertising in varying degrees. For a short time the province of British Columbia sought to prohibit virtually all such advertising, but it has returned to the former state of the law, under which liquor may be advertised in newspapers or periodicals, subject to

prior approval of all such advertising by the Liquor Control Board. Outdoor advertising of liquor is forbidden, which is an example of the kind of provincial regulation designed to minimize the impact of such advertising on the young.

The Canadian Radio-Television Commission exercises control over the advertising of alcoholic beverages on radio and television. The regulations¹⁸ prohibit the advertising of spiritous or "hard" liquor altogether. They permit advertising of beer, wine or cider in any province in which the advertising of such substances is permitted by provincial law. Their advertising on radio and television is subject, however, to the following conditions, among others: the advertising must not be designed to promote the general use of beer, wine or cider, but this condition is not construed so as to prevent "industry, institutional, public service or brand preference advertising"; the advertisement must not exceed sixty seconds in duration; and it must be approved by a representative of the Commission prior to broadcast.¹⁹

The advertising of spiritous or 'hard' liquor appears to be heavily concentrated in certain periodicals. Indeed, an examination of such magazines indicates that a very significant proportion of their advertising revenue must be derived from advertising by distillers, most of which is in the form of full-page colour ads. Such advertising is chiefly of the brand preference type, although some of it carries overtones of the association of drinking with distinction of various kinds. Occasionally, there is advertising of a public service nature, as for example, an advertisement on the need to seek medical help for problem drinking. In one issue which carried this advertisement, however, there were several straightforward liquor advertisements by the same company. A ban on such advertising would undoubtedly have a very severe impact on the advertising revenues of such publications. The question is whether such advertising causes sufficient harm to warrant such a ban. The assumption on which such a ban would be based is that the harm caused by the excessive use of alcoholic beverages is such that we are justified in attempting to prevent any encouragement of their use as much as possible.

It is, of course, impossible to assess the extent to which such advertising encourages the use of alcohol. One can only assume from the investment that is made in it that it is at least considered by the advertisers to encourage brand preference. What other message the advertising may carry is far from clear. Certainly, it is highly attractive and subtly suggests the association of certain products with distinction and social prestige. On the other hand, its exposure to the young is presumably less than that of advertising on the broadcast media and that of various forms of outdoor advertising.

To be feasible a prohibition of such advertising would have to be introduced at the federal level. Because the periodicals which carry such advertisements are either national in scope or originate outside of Canada it is not feasible for individual provinces to consider such a prohibition.

It would be preferable if there were a total prohibition of liquor advertising but if this were not considered feasible because of the substantial amounts of advertising revenue involved, we recommend that advertisers of alcoholic beverages be required by federal law to include in their advertisements a warning of the dangers of excessive use (e.g., "Danger to your health increases with amount consumed") similar to that which is included in cigarette advertising. The text in such advertisements should also be confined to truthful, matter-of-fact description of the contents of the product and its effects on the human body.

At the present time there is no federal regulation of the advertising of tobacco products, although there is some self-regulation by the industry. British Columbia is the only province that appears to have introduced any regulation of such advertising.

Bill C-248, for the enactment of a *Cigarette Products Act*, was introduced in the federal Parliament by the Minister of National Health and Welfare and given first reading in June 1971 but was later abandoned, presumably as a result of pressure from the cigarette manufacturers and their willingness to undertake a measure of self-regulation. Bill C-248 would have prohibited all advertising or "promotion" of cigarettes to the public except for identification of products at point of purchase. It would also have set limits on the amount of nicotine, tar, and other constituents which cigarette products could contain, and would have required that all cigarette packages carry a statement of the amount of such substances contained in the smoke of the cigarettes, as well as a warning in the following terms: WARNING: DANGER TO HEALTH INCREASES WITH AMOUNT SMOKED, AVOID INHALING. The Act would have come into force on January 1st, 1972.

The industry code for self-regulation, entitled "The Cigarette Advertising Code of the Canadian Tobacco Manufacturers' Council", took effect on this date. Unlike the Bill, it does not prohibit all cigarette advertising to the public, but only such advertising on radio and television. It requires that a warning in the following terms be clearly indicated on all cigarette packages: WARNING: THE DEPARTMENT OF NATIONAL HEALTH AND WELFARE ADVISES THAT THE DANGER TO HEALTH INCREASES WITH THE AMOUNT SMOKED. The Code does not appear to require that such warning be carried in advertising, but in fact all cigarette ads in periodicals appear to carry it.

This may result in part from the fact that the regulations made under the *Tobacco Products Act*²⁰ of British Columbia require that not only every cigarette package but every advertisement of cigarettes in the province must carry a warning in one of the following three forms:

WARNING: Cigarette smoking is harmful to you.

WARNING: The Department of National Health and Welfare advises that danger to health increases with amount smoked.

WARNING: The Surgeon General has determined that Cigarette Smoking is Dangerous to Your Health.²¹

The third alternative is for the convenience of American advertisers.

The media in which the advertising of tobacco is permitted in British Columbia, subject to the foregoing condition concerning cigarettes, are newspapers, books, periodicals, programs, circulars, price-lists or letters, vending machines, and the premises of sellers. Any other form of outdoor advertising (such as billboard advertising) and advertising in the broadcasting media would appear to be prohibited.

In summary then, the advertising of cigarettes on radio and television in Canada is effectively prohibited in Canada, as a result of industry regulation, and all cigarette advertising must carry a warning of the dangers of smoking. The warning does not, however, as was originally contemplated by Bill C-248, caution against inhaling. The industry code contains a number of rules designed to reduce the impact of cigarette advertising on young people, including the use in such advertising of athletes, entertainers or other personalities likely to have special appeal to children or adolescents. More generally, the Code stipulates that cigarette advertising should be of the brand preference type and should not state or imply that smoking "is essential to romance, prominence, success or personal advancement".

As with alcoholic beverages the issue is whether there should be a complete prohibition of such advertising. Once again, there would appear to be a significant reliance by periodicals (although not as great as in the case of liquor) on revenue from such advertising, and many of these periodicals originate outside the country. **A total prohibition of all cigarette advertising would be preferable but if it is not considered feasible, for jurisdictional or other reasons, we would recommend, as in the case of alcoholic beverages, that the text in such advertising be confined to straight, matter-of-fact description of the contents of the product and its effects on the human body. Although we recognize that some protection is involved in the warning that is now voluntarily carried in such advertising by the tobacco industry, we recommend that it clearly convey the fact that the regular smoking of cigarettes, because of the dependence that develops, almost inevitably leads to the level of use that is dangerous. We further recommend that such warning be required as a matter of law by appropriate federal provision.**

The advertising of certain hazardous products which may be used for purposes of intoxication, in particular volatile substances, is regulated by a federal statute, the *Hazardous Products Act*.²² The regulations made under the Act provide that certain volatile solvents shall not be advertised or sold unless the label on their container carries the required warning of the dangers involved in use. These warnings indicate that the vapour is harmful and that one should not breathe the fumes from the substance. There is little danger that such substances will be advertised or promoted for purposes of intoxication. The intervention of government is to require that labelling carry a suitable caution of the hazards incurred when they are used improperly.

At the same time, if the warnings were too explicit they could encourage such use by what the U.S. Consumers Union report *Licit and Illicit Drugs* has called the "lure of the warning".²³

It is necessary now to consider the general effect of the media on non-medical drug use, and in particular, the extent to which the media may have encouraged illicit drug use. It is impossible to be certain but it is reasonable to assume that the publicity given to certain aspects of illicit drug use has aroused an unhealthy interest in it. Certain of the media appear to have been involved in favourable references to illicit drug use and even overt encouragement of it. The media that have been particularly guilty of this have been FM "rock" music radio stations and the "underground" press.

Drug-oriented music may take one or both of two forms. Its lyrics may contain passages or expressions which can be taken as references to drug use, although this is at times a matter of interpretation. It may not reflect the original intent of the author of the song. The second form is not projected through the lyrics but through the music itself, which, it is claimed, often functions to enhance the effects of some forms of non-medical drug use.

The modern era of drug-oriented music began about 1963 with the appearance of two songs "Puff the Magic Dragon" and "Walk Right In", which, it is said, were running allegories about marijuana intoxication. The most notable proliferation of this form of music began, however, in 1965, with the advent of "folk rock". Bob Dylan is generally regarded as the most significant pioneer of this form, with his song in that year "Mr. Tambourine Man", a song full of strange, new images which told the story of a drug user trying to buy drugs from a Greenwich Village trafficker.

As the use of psychedelic drugs increased both in North America and England over the following two years, more explicitly drug-oriented "rock" songs appeared. In "Rainy Day Woman", Dylan himself decreed unambiguously that "everybody must get stoned". The Rolling Stones portrayed one kind of drug experience in "Get Off of My Cloud", and publicized the "housewife syndrome" in a later song that dubbed the "little yellow (amphetamine) pill", "Mother's Little Helper". The Mothers of Invention satirized the growing use of drugs in middle-class America in their album *Freakout*. The English singer Donovan wrote "Mellow Yellow", the product of a rumour in circulation at the time that the insides of banana skins, properly prepared, would induce a drug-like 'high'.

The interrelationship of rock music with drug use was not confined to lyrics and *double entendre* references. A basic quality of the drug experience—distortion of time and spatial perception—was being captured in new styles of a ranging instrumentation. Increasing electronic sophistication made it possible, for example, to "twist and bend" the sounds from an electronically amplified guitar out of all recognition.

In 1966 rock music groups who produced while under the influence of psychedelic drugs became prominent. The first track of a production by

Country Joe and the Fish was "Flying High", a description of the musicians' adventures during an LSD experience. On the West Coast of the United States, such groups as The Grateful Dead, who admitted to consuming large quantities of LSD before performances, The Jefferson Airplane and Big Brother and the Holding Company produced drug-oriented music, which became known to its devotees as "acid rock". The Beatles, perhaps the most popular and widely known musical group of the 1960s, produced an album entitled *Sgt. Pepper's Lonely Hearts Club Band*, about the same time in which there were numerous allusions to drug use and drug-oriented images.

Throughout the period until 1969, some rock music groups proselytized for drug use, some were indifferent, and some like Steppenwolf, portrayed the 'pusher' in terms of severe condemnation, while allowing for the relative harmlessness of "pills and smoke". Throughout 1970 drug themes in rock music began to lose their prominence, and a change became evident by late 1970 after Janis Joplin and Jimi Hendrix, two of the most prominent artists of the 1960s, died suddenly. Shortly after their deaths there began to appear a number of rock productions warning the young of the dangers of non-medical drug use. Some productions painted frightening images of the addict and his needle. Others expressed a disillusionment with the creative value of hallucinogenic drugs—for example, the following lines by John Lennon of the Beatles:

I seen through junkies I been through it all,
I seen religion from Jesus to Paul,
Don't let them fool you with dope and cocaine,
Can't do you no harm to feel your own pain
I found out!

The Canadian Radio-Television Commission does not specifically provide for the control of music associated with drug use. Nor are there indications that the broadcast industry itself would welcome such an intervention. A number of FM rock radio program directors that were interviewed said they drew the line at outright endorsement of drug use from any quarter and said they would be prepared to change their attitudes if it could be proven to them that drug-oriented music did in fact lead young people to drug use.²⁴

The "underground" or "alternate" press now publishes in a number of cities across Canada. Editorially speaking, most "underground" papers are positively oriented to the recreational use of drugs. There has always been a basic consensus in the "underground" press that certain drugs have valuable properties and that the existence and enforcement of federal laws concerning drug use are unethical and unacceptable. References to the drug experience find their way, without apology, into reporting, features and entertainment of every kind appearing in these publications. The degree to which this editorial policy may influence the non-medical use of drugs by the readership of the "underground" press is difficult to ascertain. No readership surveys have been

carried out in Canada but in the late 1960s such a survey was carried out by the *East Village Other*, a major "underground" publication in the United States. This survey showed that 98 per cent of the readership of this publication had tried marijuana at least once and 77 per cent had tried LSD. Interpretation of these findings is difficult, since it cannot be ascertained whether this drug use was encouraged by the editorial posture of the publication, or whether the publication had a special appeal for readers who had already used these drugs. Although the editors of these publications assert that their readership expects to find in the "underground" press the ultimate confirmation of ideas to which they already cling, it must be recognized that as early as 1968 in Canada the "underground" press was proselytizing indiscriminately on behalf of hallucinogenic drug use. The early history of these publications in North America is marked by a high degree of defiance of the present drug laws, and of curiosity and uncritical acceptance in relation to many types of drug use.

By the spring of 1971 the preoccupation with non-medical drug use appeared to have diminished. Analysis of successive issues of American "underground" publications showed a progressive diminution in the space being devoted to this subject. There also appeared to have been a qualitative change. Stories on the morality of drug use were giving way in Canadian "underground" publications to advice and discussion intended to provide practical information to young drug-using readers. One widely syndicated column, written by a California physician, provided information about the side effects and dangers of well-known and more obscure drugs. More space was being devoted to the dangers of heroin and amphetamine use, and wide discussion was given to those rock artists who had recently expressed their disillusionment with the value of LSD. In Canada, one West Coast "underground" publication ran a highly revealing feature by Black Panther Eldridge Cleaver during 1970. In the article, Cleaver delivered a scathing denunciation of LSD and of Dr. Timothy Leary, the so-called high priest of psychedelics, for being what he described as death-inspired and counter-revolutionary. The trend of "underground" publications in Canada in 1971 was described by one Commission researcher as follows:

Drugs have not ceased to provide an orientation or a rallying point, but the realization has developed that an alternative social order cannot be founded on their use alone.²⁵

The question arises as to whether the law should specifically prohibit acts which encourage illicit drug use or exploit it as a dominant theme. French law makes it a criminal offence to incite a person to commit drug offences or to portray them in a favourable light.²⁶ Counselling or aiding and abetting a criminal offence, such as trafficking or simple possession, is presently covered by the *Criminal Code* of Canada. (See Appendix F.4 *Applicable Provisions of the Criminal Code*.) There is no necessity to create a special offence applicable to drug use to cover such conduct. The question

arises as to whether there should be an offence, similar to that of obscenity, consisting in the undue exploitation of illicit drug use. Our experience with the law of obscenity, which has given rise to critical re-examination, suggests that it would be unwise to create a new offence of this character. Direct, overt encouragement of conduct which is presently an offence under the drug laws is the matter of principal concern in this general area and is adequately covered by the offence of counselling.²⁷

NOTES

1. C. M. Lanphier & S. B. Phillips, "The Non-Medical Use of Drugs and Associated Attitudes: A National Household Survey," "Secondary School Students and Non-Medical Drug Use: A National Survey of Students Enrolled in Grades Seven through Thirteen," and "University Students and Non-Medical Drug Use: A National Survey," Unpublished Commission Research Projects, 1971.
2. Studies conducted for the Addiction Research Foundation of Ontario support our own findings that users and non-users differ in the sources of information about drugs that are regarded by them as most important. The media were an important source of information for both groups, but whereas it was the most important for non-users, it was outranked, in the case of users, by reliance on friends and their own experience. See R. G. Smart & D. Fejer, "Most Influential Source of Drug Information and Extent of Drug Use," Unpublished manuscript, Project H-130, Substudy 44-7-71, Addiction Research Foundation, Toronto, 1971; R. G. Smart, "Age and Sex Differences in the Most Influential Source of Drug Information," Unpublished manuscript, Project H-217, Substudy 43-7-71, Addiction Research Foundation, Toronto, 1971; and R. G. Smart & D. Fejer, "Credibility of Sources of Drug Information for High School Students," Unpublished manuscript, Project H-130, Substudy 7-7 & Jo-71, Addiction Research Foundation, Toronto, 1971.
3. D. L. Kanter, "Pharmaceutical Advertising and Youth," Coronado, California: Coronado Unified School District, 1970.
4. Elliott Research Corporation Limited, "National Expenditures," in *Marketing*, March 22, 1971, p. 41 and "Radio T.V. Expenditure," in *Marketing*, March 1, 1971, p. 12.
5. *Ibid.*
6. *Benson and Hedges (Canada) et al v. Attorney General of British Columbia*. [1972] 5 W.W.R. 3 (B.C. Sup. Ct. Hinkson J.), which upheld the validity of a provision in the *Government Liquor Act* of British Columbia prohibiting certain forms of liquor advertising and the *Tobacco Advertising Restraint Act* of British Columbia, which prohibited certain forms of tobacco advertising in the province. Both of these legislative provisions have since been replaced by less restrictive measures, and the decision of the Supreme Court was not appealed, but it contains a useful review of the issues and the authorities.
7. *Narcotic Control Regulations*, section 50.
8. *Food and Drug Regulations*, G.01.007.
9. *Food and Drug Regulations*, C.01.044. Such a drug may be advertised to the general public if it is in a form not suitable for human consumption and is clearly indicated as such.
10. Section 3.
11. Section 9.

12. Section 25.
13. R.S.C. 1970, c. P-25.
14. Section 8.
15. Section 11 of the AM Radio, FM Radio and Television Broadcasting Regulations of the Canadian Radio-Television Commission. The Canada Gazette P II, Vol. 98, pp. 163, 649 and Vol. 93, p. 1198.
16. In May 1973 the Broadcast Code for Advertising to Children, which is an industry code for self-regulation, was amended to include the following provision: "Drugs, proprietary medicines, and vitamins in liquid, powdered or tablet form must not be advertised to children." This Code, which supplements the Canadian Code of Advertising Standards, also developed by the Association for self-regulation, applies to "commercial messages broadcast specifically to children under 13, whether on children's or adult programmes".
17. Dr. A. B. Morrison, Assistant Deputy Minister, Department of National Health and Welfare, Health Protection Branch, Personal communication to the Commission, May 2, 1973.
18. Section 10 of the AM Radio, FM Radio and Television Broadcasting Regulations of the Canadian Radio-Television Commission. The Canada Gazette P II, Vol. 98, pp. 162 and 648; Vol. 93, p. 1198 as amended by S.O.R. 71-558, 24 September 1971.
19. Pre-broadcast approval is given by a Committee of three (called "The Beer and Wine Committee"), composed of one representative from the Canadian Radio-Television Commission (CRTC), one from the Ontario Liquor Control Board and one from the Quebec Liquor Permit Control Commission. The Committee decides in accordance with published guidelines established by the CRTC. These guidelines provide in part as follows:
 1. The main criterion in the approval of scripts is adherence to standards of good taste.
 2. Advertising shall not
 - (a) encourage the general consumption of the product, nor should it attempt to influence non-drinkers to drink;
 - (b) be associated with youth or youth symbols;
 - (c) attempt to establish a certain product as a status symbol, a necessity for the enjoyment of life, or an escape from life's problems;
 - (d) show persons engaged in any activity in which the consumption of alcohol is prohibited.
20. Stat. B.C. 1972 (2nd Session), c. 13.
21. *Tobacco Products Regulations*, adopted November 2, 1972. Order in Council No. 3941 dated 2 Nov. 1972.
22. R.S.C. 1970, c. H-3.
23. E. M. Brecher & the Editors of Consumer Reports, *Licit and Illicit Drugs: The Consumers Union Report on Narcotics, Stimulants, Depressants, Inhalants, Hallucinogens and Marijuana—Including Caffeine, Nicotine and Alcohol*, (Boston: Little, Brown, 1972), p. 323.
24. J. David, "The Role of Rock Music and the Underground Press in Relation to the Non-Medical Use of Drugs," Unpublished Commission research paper, 1971.

25. *Ibid.*
26. Loi n° 70-1320 du 31 décembre 1970, art. 630.
27. See *R. v. McLeod and Georgia Straight Publishing Ltd.*, 12 C.R.N.S. 193 (B.C.C.A.) in which the offence of counselling was applied against an "underground" paper for encouraging the cultivation of marijuana.

Section XV

Innovative Services

Since the publication of our *Interim Report*, the Federal Government has demonstrated its support for the innovative services in a number of ways. The Non-Medical Use of Drugs Directorate (NMUD) was established by the Department of National Health and Welfare with a section specifically responsible for monitoring and evaluating these services. Regional offices were created to provide liason between local services and the Directorate. The Department of National Health and Welfare has allocated an increasingly substantial number of grants for the creation and operation of these services. In addition, funds have been available through Opportunities for Youth and the Local Initiatives Program.

In 1970, the Commission strongly expressed its support for these services, recommending that they be encouraged both morally and financially. Satisfactory progress has been made in this regard.

In Appendix M of this report we have updated and expanded upon our previous observations and have expressed some reservations about innovative services. In following their operation and development we have seen that some innovative services are subject to many of the same pitfalls as the more traditional agencies. Some have become rigidly bureaucratic and remote from their clientele and original purpose; others have slipped into laxity and perfunctory routine, losing sight of their clients' real needs and failing to evolve with the changing non-medical drug use scene.

On the other hand, the innovative services have diversified greatly since the publication of the *Interim Report*. Many of them, realizing the decreasing urgency of their original purposes (providing emergency drug-crisis intervention, for example) have turned their attention to other fundamental problems. A great number have thus become less narrowly focussed on particular deviant populations and more broadly community-oriented, attempting to deal with the sources of social alienation which can promote the non-medical use of drugs. This broader outlook and community focus should be encouraged.

As explained in Appendix M, we feel that the time has come for the innovative services to elaborate their own criteria of success, and to sys-

tematically undertake self-evaluation on that basis. The Commission also believes that better evaluative criteria must be developed by funding sources. Among the most appropriate would be the relevance of each group's *raison d'être*; for example, the difficulty the clientele may have in obtaining the services offered from traditional agencies, or the extent of the clientele's reluctance to turn to those agencies. Another criterion would be the degree of genuine client participation in decision-making and the endogenous leadership development encouraged by the service.

The Commission feels that the Federal Government could terminate its financial support of innovative services less abruptly than is now the practice. While the provinces must have the final decision regarding continued support of a service after two or three years of federal funding, federal grants could be gradually tapered off to ease this transition. In order to obtain the maximum benefit from federal investment in the innovative services and the experience acquired by service leaders, there must be close cooperation between the Department of National Health and Welfare and the various provincial health departments. Priorities, criteria for evaluation and modes of financing should be discussed jointly.

A more detailed description of the character and evolution of innovative services, a discussion of some of the problems inherent in these services and their funding sources, as well as the Commission's recommendations, may be found in Appendix M *Innovative Services*.

Section XVI

The Family and Spiritual Influences

THE FAMILY

We made some reference to the influence of the family in Section III *Causes of Non-Medical Drug Use*, and in particular to the study by Richard Blum and Associates entitled *Horatio Alger's Children*. Response to our *Interim Report* suggested that too little attention had been paid to the role of the family, and while the significance of the family was necessarily implied in many of our observations concerning the causes of non-medical drug use, this comment was probably justified. Certainly, we have become increasingly impressed in the course of our inquiry by the importance of the family in relation to the whole phenomenon of drug use, medical and non-medical, legal and illegal. Indeed, the family would appear to be the most important of the formative influences. A propensity to harmful drug use may often originate in the early years when the child is most susceptible to family influences. The example set by parents is critical, both in their own use of drugs and in the importance which they appear to attach generally to reliance on the use of drugs to relieve discomfort. The capacity to accept our emotional cycle, tolerate frustration and to cope with stress all owe a great deal to family influence. Parents also have an important role to play in the development of attitudes toward the law.

A good deal of helpful instruction about drugs can be given in the family if parents take the trouble to inform themselves accurately on essential matters of fact, but the most important thing to be conveyed is general attitude. This has to do with the importance which drugs are to assume in one's life. An example is set by the self-administration of drugs which are intended for medical purposes. Parents will certainly influence the drug use of their children by the extent to which they make use of analgesics, tranquilizers, barbiturates, and stimulants to cope with the aches, stresses and fatigues of daily living. If they rely very heavily on the use of drugs for such purposes they may encourage a similar reliance in their children. Then, of course, their use of tobacco and alcohol can also have a critical influence, particularly if they are seen to be essential props to their poise and equilibrium.

Some take the view that most, if not all of these substances, can be taken in moderation with beneficial effect, and that the best influence that parents can have on their children's attitude towards drugs is not to try to inculcate an unreal goal of abstinence but rather a healthy respect for drugs and an ability to use them wisely. This comes back to the question of what should be our general social objective with respect to non-medical drug use. We reaffirm our own view that it should be to encourage people to reduce their overall use as much as possible, but to the extent that they must engage in drug use, to assist them to make a wise use of drugs that will avoid harm as much as possible. The family is probably the most important and effective influence for laying the foundations for such an approach.

This healthy respect for drugs—that they are potent substances with a potential for good and a potential for harm, and as such should be used with great discrimination—should be developed in the very early years. Essentially, it is a position that drugs are only to be used when necessary. The mother can have a very profound influence by the restraint which she exercises, for example, in the use of aspirin and other over-the-counter drugs for self-medication. At the same time, one must be careful not to develop an unreasoning distrust of drugs and a refusal to make use of the assistance that modern medicine can offer for a variety of conditions which seriously impair the capacity to function and to relate effectively to other human beings. Because an over-emphasis on the reliance on drugs has led to a general increase in the use of drugs for all purposes is no reason to go to the other extreme and to reject the benefits of a discriminating use of drugs altogether.

There are certain factors having a bearing on non-medical drug use which it is more difficult for the family to cope with or influence. These are factors arising out of the general nature of modern life: the rapid rate of change with its frightening challenge to the power of adaptation; the bombardment of the nervous system by stimuli of all kinds; depression about some of the gigantic and seemingly insoluble problems that face humanity—over-population, pollution, depletion of resources, racial tension, continuous resort to war—and the resulting uncertainty about the future.

The family, like other institutions, is influenced by a greater emphasis in the general atmosphere on pleasure, self-indulgence and enjoyment of the present. This is fostered by the impression that everything is changing, that nothing is certain, that it is useless to plan or to sacrifice the present for a future that may never come. There is concern about spending too much time in work and not getting enough fun out of life. There is not the same feeling as there used to be that there will be time for everything before life is over. There is not the same readiness to put things off. All of this stimulates a general desire for experience and sensation of all kinds. It is in this general atmosphere of emphasis on present pleasure, in the family as elsewhere, that drug use exerts its attraction.

It is difficult for parents today to assist their children to meet the challenge of change. Whereas previous generations could plan and prepare for a fairly specific future, having reason to believe that the things they were learning from parents and teachers would be relevant and useful in the future, modern youth does not have this assurance. It feels that very little of what the older generation has to convey will be of much use to it in the future. Take, for example, the older generation's experience with the family—the most important formative influence and source of human satisfaction; this ought to be among the most important lessons which it has to transmit. Yet the family is under severe challenge and appears to be going through a profound change. This change is being brought about by (among other things) the revolution in the attitude towards the role of woman and the place of authority in the modern world. The nuclear family may continue to try to impart a certain sense of security and assurance but children instinctively know that they are moving into a new world. They perceive the essential outline of its new relationships and new values but they are uncertain as to how successful they will be in adapting to it. Parents and children must meet the challenge of adaptation together, although the children have farther to go. Parents can help by showing their awareness of the great uncertainty and anxiety of this adventure and by trying to reinforce confidence in the future. They can also show that they understand why their children must experiment and otherwise develop their capacity to cope with change. This, of course, does not exclude the presentation by parents of their own values, attitudes and expectations, as in the case of Blum's "low-risk" families, to which reference is made in Section III *Causes of Non-Medical Drug Use*.

There is every reason to hope and believe that the sense of self-acceptance, personal security and responsibility that can be fostered by good family relations will continue to be serviceable in the new world into which the younger generation is moving. Understanding, openness and trust have been constantly stressed in the course of our inquiry as qualities that permit parents and children to communicate effectively. Such communication is one of the means by which family life as an important social structure can exert its constructive influence.

Many of the problems involved in non-medical drug use result from the manner in which we react to it. The reaction of parents on discovering that their children have been engaged in non-medical drug use is of crucial importance. The first step is to try to maintain a sense of proportion about the relative danger and seriousness of the conduct. This, of course, depends on the nature of the particular drug use, and the degree of involvement. The second step is to try to discuss it rationally in order to bring out all the relevant factors and an understanding of what should be done about it. The third step is to avoid withdrawing personal support. We cannot think of any situation that can be improved by parental rejection or the denial of the

existence of facts and realities. There can be disapproval of specific conduct without rejection of the child.

It must be acknowledged, however, that the influence of the family has been increasingly undermined by the difficulty which parents experience in being sufficiently informed in many areas in which their children have more sophisticated knowledge. It is for this reason that parents require drug education as much as their children.

SPIRITUAL INFLUENCES

Although there were some notable exceptions, such as the United Church of Canada, the organized churches as such did not play a very prominent part in the Commission's public hearings. Invitations to make submissions were sent to all the official church organizations, but only a few of them responded. We did, however, hear from many ministers of religion and laymen on what they felt to be the relation of religious faith and practice to the challenge presented by non-medical drug use. Subsequently, the Commission conducted a survey of opinion among the administrative heads of various religious denominations. A general theme that emerged from the opinion expressed to us by ministers of religion and others involved in the work of the churches was an over-riding concern with what they perceived to be a decline in spiritual values and a corresponding adherence to materialistic or hedonistic goals and values. A characteristic expression of this view was the following statement by the Board of Evangelism and Social Service of the United Church of Canada: "We have accepted too easily the hedonism of our North American culture, with each person interested in 'doing his own thing'."

According to our survey, the churches and other religious organizations like the Salvation Army have been involved in a variety of activities aimed at helping people with problems related to non-medical drug use. These include personal counselling, cooperation with and referral to community services of various kinds, informational and educational programs, the provision of shelter, and special facilities and activities for youth. Some of the churches have been actively involved in the sponsorship of innovative services of various kinds.

Religious faith obviously has an important role to play in relation to non-medical drug use. This faith, and the strength that derives from it, can assist the individual in his struggle to avoid or overcome dependence on drugs. Its force has been demonstrated in the work of Alcoholics Anonymous. Involvement in groups or movements of a mystical, altruistic or religious tendency has apparently permitted many persons to renounce the excessive use of certain drugs. For example, a small proportion of drug users have found in certain eastern religious disciplines the inspiration which has helped them to abstain from drug use or at least to use drugs with more moderation.

There is another important principle involved in the work of Alcoholics Anonymous that should also flow inevitably from religious conviction, and that is involvement in helping others. It is a cardinal principle of Alcoholics Anonymous that alcoholics become involved in helping others as part of their own rehabilitation. Excessive drug use often reflects an excessive preoccupation with self—with one's moods, state of mind, sensations, discomforts and pleasures—and an insufficient involvement with others. Involvement in being of service to others can act as a prevention and a remedy.

There are many manifestations of spiritual concern among young people today. The whole re-examination of our values, in which young people have played a catalyzing role, has a certain spiritual aspect. It is concerned with rediscovering the essential nature of our humanity and our duty to our fellow man. From some source of inspiration has come a strong desire in many young people to be of service. Perhaps they do not constitute a majority but they are certainly a significant minority. They increasingly seek a role that will help them to express their individuality but at the same time will give meaning and value to their lives. More and more of them are seeking this value in trying to be of help to others.

There is a great potential in this spirit for constructive alternatives to drug use. There is much work to be done in the community to be of help to others: with youth, with the aged, with immigrants, with native peoples, and with the handicapped, the poor and the underprivileged generally. There has been support for many such enterprises from both government and private agencies. There is great scope for such service in the field of drug use itself. As we said in Section XI *Social Rehabilitation* above, we require many more people—a whole new lay ministry—with the dedication, the patience and the practical skills to work in a one-to-one relationship on the rehabilitation and social reintegration of persons trying to escape from the misery and defeat of drug dependence.

Part Five

Additional Conclusions and Recommendations

Additional Conclusions and Recommendations of *Marie-Andrée Bertrand*

INTRODUCTION

I hasten to stress that I am entirely in agreement with my colleagues' objectives of limitation, control and maximum possible reduction of hard drug use in Canada. I share their concern for restricting the use of opiate narcotics and strong hallucinogens, and for preventing the spread of such use to hitherto unaffected strata of the population. Not only do I share their objectives in this, but I propose even greater stringency than they with respect to the manufacture and illegal trafficking of hard drugs. My recommendations will include even more severe penalties and other measures that seem to me likely to be more effective in combatting illegal importation and trafficking than those proposed by the majority.

Reducing hard drug use in Canada, then, is our common goal. I cannot, however, concur with the measures proposed by my colleagues in pursuit of that goal. I do not believe that the best way to restrict or discourage hard drug use is by retaining the present laws making possession of opiate narcotics and strong hallucinogens a criminal offence. Nor do I agree with the recommendation that users of opiates be subjected to compulsory treatment.

In short, my position with regard to the handling of hard drug users differs from that of my colleagues on two points:

- 1) retention of simple possession of opiates and strong hallucinogens as a criminal offence (under the *Narcotic Control Act* and Part IV of the *Food and Drugs Act*); and
- 2) commitment of opiate-dependent persons for compulsory treatment; subjecting an individual against his will to measures intended to change his habits and life style.

I shall first explain my opposition to retention of the criminal offence of simple drug possession, even for hard drugs. I shall then give my reasons for rejecting the use of criminal process as a point of departure in the treatment of opiate-dependent persons.

Having discussed these two points, I shall put forward measures for dealing with drug users that seem to me more appropriate than recourse to criminal law. In particular, I shall describe certain educational and treatment programs which in my opinion should be substituted for criminal law sanctions. I shall also suggest controls that might be imposed and other action that might be taken with respect to traffickers and importers of drugs of all kinds.

THE FUTILITY OF THE OFFENCE OF SIMPLE POSSESSION AS A DETERRENT TO DRUG USE

There are objections of both principle and practicality to the invocation of criminal law against the authors of crimes without victim; a classic example of such crime is the possession of drugs for one's own use.

Using the criminal law for controlling behaviour which amounts only to an individual's personal life style, custom or private conduct is overreaching the intent of the criminal law, inasmuch as it overreaches the intended effect. Such application of the criminal law is in fact an abuse of a powerful instrument of control, with inescapable practical and moral consequences. Where there is no victim of a crime, and therefore no complainant, apprehension and prosecution take on a most singular character, requiring exceptional procedures and methods that amount to infringement of the civil liberties of individuals. Search, arrest and prosecution in cases of simple possession of drugs are precisely of this nature. In such cases it has been the State's will to set aside the normal presumption of innocence and the inviolable right to immunity from arrest and search of person and premises in the absence of a warrant; the State appears to regard the possession of opiate narcotics in itself as a grave danger, and persons suspected of it must at all costs be apprehended. Legal action against users of strong hallucinogens likewise involves exceptional procedures of arrest.

The degree of *deterrence* and *control* expected in justification of these special measures has simply not been realized. The number of convictions for heroin possession has risen from 243 in 1964 to 630 in 1972. Convictions for possession of strong hallucinogens have far from diminished (1,014 in 1970, 1,210 in 1972 for LSD and MDA). It is almost redundant to recall that convictions for cannabis possession have risen astronomically, from 25 in 1964 to 10,695 in 1972.

Furthermore, conviction or even apprehension statistics provide at best only a vague indication of the extent of use. Police reports alone record an increase in the number of *known opiate addicts* from 2,947 in 1964 to 8,958 in 1972, and these totals do not include professionals who are addicts (largely medicine-related) or persons who are drug dependent as a consequence of medical treatment. As the majority report observes, law enforcement agents have endeavoured to "contain" the phenomenon by keeping it in sight. Until

recent years, the police knew or thought they knew most addicts and could identify newcomers among them. Events, however, have shown their control tactics to be ineffective to say the least. Nor have the penalties provided by law, even as severe as they are, prevented a million Canadians from smoking marijuana and hashish during the past year. Many people tend to think that cannabis users are no longer jailed, and that is one reason for the increased use of the drug, but in 1972 there were over 560 prison sentences meted out for simple possession of cannabis.

The evidence has to be believed. Criminal law prohibition of simple possession, despite the high cost of its application to opiates and cannabis, has not prevented convictions for simple possession from tripling in the case of opiates between 1964 and 1972, and from multiplying over 425 times in the case of cannabis. Furthermore, we would probably have to multiply the number of convictions by 100 to have an idea of the number of drug users there are at any given time. Both hard and soft drugs are now being used by new segments of the population, and these segments are so heterogeneous and scattered that the old police practices have become quite ineffective, as the majority report observes.

The use of the criminal law where possession and use of drugs is involved may strictly speaking be justified by the pedagogical intent of the law, as the majority report observes. The legislator, however, does not appear ever to have fully appreciated that aspect of the law. To be effective, the pedagogical intent should be clearly stated and tailored to the circumstances. In particular, prohibitions and penalties would need to be proportioned to the relative potential for harm attributable to each injurious substance. This is far from the case. The laws regarding possession are inconsistent and unrelated to the gravity of the consequences entailed in the use of the various drugs, for the user himself and for others. Alcohol, which is by far the most potentially harmful and most criminogenic psychotropic substance, is distributed under government control and enjoys great popularity. Tobacco, whose potential for harm is well established, is sold freely under the law except to minors. The amphetamines, which are not far behind alcohol in harmful and criminogenic potential, are not subject to criminal law prohibition of possession, and it is not recommended in the majority report that they should be made so, in recognition of the certain ineffectiveness and extreme awkwardness of such a measure—of the futility, in short, of any extension of the offence of simple possession. The barbiturates, which head the list in causes of death by suicide, are subject to no prohibition of possession and their controlled distribution does not work as intended. Prescription control is no deterrent for anyone who really wants them; recent polls carried out in Toronto show that young people obtain them with great ease. The minor tranquilizers are very accessible, prescription control being once again ineffective. Cannabis, whose real potential for harm is not established, is still classified as a narcotic. Though many courts tend to give relatively light sentences for possession of marijuana and hashish, under the law the possession of these drugs remains

a punishable offence, and during 1972 there were still well over 500 incarcerations for simple possession. Volatile solvents, which have a high potential for harm, are subject to no legal prohibition whatever, and, desirable though it might be, control of their distribution and use would be quite impossible due to their wide normal use for household and other purposes. The strong hallucinogens, whose abuse can be extremely harmful but which are not apparently criminogenic and do not cause dependence, are subject to a prohibition of possession, but only under the *Food and Drugs Act*, whose "moral" impact certainly appears less onerous than that of the *Narcotic Control Act*. This impression is reinforced by the large number of witnesses appearing before the Commission who have recommended that cannabis be reclassified under the *Food and Drugs Act* rather than left under the *Narcotic Control Act*, on the ground that cannabis is not pharmacologically an opiate narcotic and does not warrant inclusion in the more "incriminating" statute.

As can be seen, the contradictions and inconsistencies in the legal classification of drugs are considerable, weakening the pedagogical value of the classification. Any lesson that might be drawn by Canadians from the inclusion of a substance in a strictly controlled category of drugs or medications is therefore lost. The ordinary citizen, seeing the assertions implied by the law frequently belied by pharmacological fact or the effects that he himself experiences in the use of drugs, has long since ceased to look for a relationship between the harmfulness of a substance and its classification under criminal law. In this domain, it must be said that the criminal law is thoroughly outdated and outworn.

It seems particularly illogical, ineffective and inhumane to use the criminal law against opiate dependents. If there is anything which ordinary citizens and scientists unanimously recognize, it is the high dependence-creating potential of the opiate narcotics. And yet in flagrant self-contradiction, on the one hand we define heroin and other opiate addicts as vulnerable and dependent individuals with a compulsive physiological or psychological drug need (or perhaps both), and on the other, we react to their dependence with police searches, apprehension, detention in police cells, criminal trials, fines and incarceration. We make criminals out of people whom we consider to be suffering physical and psychological disorders; we impose punishments which further alienate people who are already alienated enough, and often suffer quite sufficiently from that alone. What the opiate-dependent person needs is not harassment but compassion, not imprisonment but education and medical and psychiatric treatment.

Not only is criminal law prohibition proving ineffective in curbing the rising use of opiate narcotics and strong hallucinogens, but it creates illicit markets in which the cost of these drugs is exceedingly high and fluctuating and the supply uncertain. Since an opiate dependent's need for his drug is compulsive, most street addicts commit crimes against property and even crimes of violence when they no longer have the drugs they crave or the

money to obtain them. And in this atmosphere of clandestinity and illegality, the black market, we can be sure, takes full advantage of the demand.

The State's expenditure of public funds in detecting, apprehending and convicting users of opiates and strong hallucinogens is not justified, in final analysis, by the results obtained. Until recent months, the police have claimed to know most heroin addicts, and have made a policy of arresting them from time to time. But many drug-dependent persons learn to live with this police harassment, which in any event does nothing to relieve them of their dependence. The inconvenience and risk of apprehension seem to be amply outweighed by the pleasurable effects and satisfaction to be had from continued use of opiate drugs. We have seen, furthermore, that today there is a whole new population of addicts who are unknown to the police. The same applies with slight variations in the case of strong hallucinogens.

COMPULSORY TREATMENT: AN ILLUSION

With the criminal law process as justification and point of departure for intervention, my colleagues propose that persons apprehended for simple possession of opiates and proven to be drug-dependent be subjected to a controlled course of treatment. The measures they suggest are certainly an improvement over the present situation; their inspiration is indeed a more humane philosophy than that underlying simple apprehension and incarceration, or methadone maintenance without alternative.

Nevertheless, in my opinion the process of catchment they propose, and its underlying principles, are *irreconcilable with the intended goals*.

What my colleagues envisage is that the dependent opiate user will be compelled to give up his dependence or transfer it to something else. It must be remembered, however, that drug dependence factors are of two kinds, physical and psychological.

It would seem that there are only two ways of overcoming the physical factors. The first is through a medication or substance which blocks the effects of the opiate, particularly heroin; this, called an antagonist, would be one additional weapon in the chemo-therapeutic armamentarium. The second is a substitution program, generally using methadone. Strictly speaking, substitution of one drug for another is not treatment.

The psychological factors of drug dependence are no less problematical. They are many and, depending on the individual, greatly varied.

It is illusory, in my opinion, to expect to overcome all these factors without the complete cooperation of the patient. Therapists attached to penal institutions are well acquainted with the dilemma. The best individual and group programs of compulsory therapy have failed so far because of the necessarily authoritarian framework and lack of free choice for patients. The compulsory confinement for education and possible treatment of the

dependent person recommended by my colleagues is predicated on prior arrest, with imprisonment to follow, of course, if the patient will not accept any of the modes of treatment offered him during the period of his or her confinement. But apprehension and threat of imprisonment are generally regarded as a form of arm-twisting by opiate dependents, which is hardly conducive to any real change of attitude, and it is essentially change of attitude that my colleagues hope to achieve in order to bring about a change in habits and relief from the physical and psychological craving for drugs.

Compulsory treatment therefore seems to me to be a contradiction in terms. Furthermore, results obtained by the most highly regarded programs in the field are unimpressive. For example, the latest evaluation of Corona (California Rehabilitation Centre) shows that barely 20% of patients transferred from confinement to supervised outpatient status remain drug-free for as long as three years. There is reason to wonder whether a success rate of this order justifies our launching such a complex program, or the coercion to which thousands of patients would have to be subjected in order to achieve it, to say nothing of the social, moral and financial costs involved.

In inducing abstinence, the therapeutic communities appear to have the best record, but their capacity is very limited and they attract only a small percentage of chronic drug users, particularly since most impose total abstinence from the moment of admission; many of them, moreover, *require that their clientele be strictly voluntary*.

Methadone maintenance treatment ("treatment" being a misnomer here, since methadone is an opiate with equal or even greater dependence-producing potential than heroin) may be effective in preventing a patient from escalating his use of other drugs, given adequate supervision. Some parolees and probationers on methadone maintenance apparently work and lead relatively normal lives. Nevertheless, it must be admitted that methadone is simply the State's drug (the one tolerated and even offered by the State), whose major advantage over heroin is that it seems to enable some patients to function and hold more or less regular jobs. This raises the question of whether the State has the right to force substitution of one dependence-producing drug for another, particularly when it is known that there is illicit marketing and use of the substitute.

We should take a hard, unbiased look at the objectives of therapeutic intervention in the case of chronic opiate users. What are we treating them for, what are we aiming for, and why? Do we want dependent persons to become total abstainers, transfer their dependence from one substance to another, or to something quite different? What right has the State to dictate the substitution of one dependence for another? In short, what do we mean by "treatment"?

Take compulsory treatment; its very principle is highly questionable. There are serious ethical and socio-political implications in the State's in-

trusion on the private lives of Canadians on the pretext that their health is endangered. Surely there should be limits to the State's responsibility in the private lives of citizens. Otherwise we risk having the State stoop to a legalistic moralism as unwholesome and invidious as that exercised by churches and commercial interests at certain periods of history.

CONTROL AND LIMITATION OF HARD DRUG USE WITHOUT RECOURSE TO CRIMINAL LAW

I believe in the necessity of controlling and limiting hard drug use, but, contrary to my colleagues, I do not believe that this will best be achieved through recourse to criminal law with respect to *users*. I do not think that branding drug users with criminal records will induce them to break their habit or persuade others not to begin. It seems to me that the time has come for a more humane, more realistic, and in fact probably more practical attitude toward those who use hard drugs, particularly opiates. Criminal law prohibitions and other such measures should be supplanted by controls of other kinds reflecting a less punitive approach.

First of all, simple possession of opiates and strong hallucinogens should cease to be considered criminal acts. There should be no offence of possession or use for any of the drugs. This does not of course mean that hard drugs should be decontrolled completely; what we need is to replace the present system with a new set of more effective and more humane controls.

If there were no offence of possession, in what other ways could the State control the use of hard drugs? As I see it, there are five:

1. *Limits on the importation, manufacture and marketing of drugs for medical purposes, whose abuse has created a climate that encourages the use of psychotropic substances in general.*
2. *Effective controls over the importation, manufacture and distribution of opiates and strong hallucinogens and safeguards against the diversion of legally manufactured drugs to illicit markets.*

I shall return to these first two points later.

3. *Confiscation of opiates and strong hallucinogens found in the possession of persons apprehended for reasons other than drug possession, and of large quantities of medical drugs for which no justification can be produced (a medical prescription, for example).* This would involve no search, arrest without warrant or prosecution of drug users as such. However, just as a motor vehicle driver for a variety of reasons may be called upon to show his vehicle registration and driving permit, and possibly to demonstrate his fitness to drive, so persons found to be in possession of substantial quantities of injurious substances should have to show a medical prescription or other proof of recognized and

legitimate need for them. Unauthorized possession, that is to say, the fact that they could only have been obtained illegally, would justify confiscation.

4. *Information and education, the best of all methods for promoting desirable habits and attitudes.* Well run, realistic and convincing publicity campaigns would help Canadians to make informed and sensible judgments about drug use. The slogan "speed kills", spread by the drug culture itself in Canada and the United States, has diverted many a speed user or potential user from this type of drug use (amphetamines taken intravenously). In Sweden, the dangers of speed have been very effectively publicized through graphic roadside billboards. The abuse of barbiturates and certain tranquilizers would justify such tactics. The torment of opiate dependence and the unenviable future in view for the heroin addict could be depicted in this way too.
5. *Controlled, legalized sale of opiates.* In view of the high relative dependence-producing potential of opiate narcotics, these drugs cannot continue to be prohibited as rigidly as they are at present. *Provincial or regional clinics should be established for dispensing opium, heroin, demerol, methadone and other synthetic opiate derivatives to authorized purchasers at very moderate prices.* A drug-dependent person who agrees to have his dependence determined and recognized, and to submit to monitoring (urinalysis or examination of needle traces on the skin), would be authorized to obtain the drug on which he is recognized to be dependent, or another, possibly less harmful one. If the chances of his being freed of his dependence were real, the clinic staff would try to convince him of it; they would propose gradual withdrawal through controlled reduction of dosage, or a substitute, which in turn he would try to give up progressively, or else various forms of individual or group therapy. Or it might be suggested that he swap his preferred drug for another, providing the substitution would be of real benefit both socially and for the user himself. The clinic should have no coercive power, however.

The patient would be required to take his drug at the clinic, for the first three or four months at least, to prevent the drugs dispensed from being trafficked; but the clinic would not insist that he take it orally instead of intravenously, since, if he did not feel capable of making the change, such a requirement might drive him back to the illicit market.

Clinic personnel, besides psychiatrists and other members of the medical profession, should include young people, former opiate dependents, psychologists and social workers who would research the patients' dependence histories. On the basis of the research, the psychiatrists and psychologists, assisted by the ex-addict staff, would propose forms of therapy likely to reach the true roots of each patient's dependence.

When I stress that drugs dispensed by these clinics should be very moderately priced, it is not to make them more easily obtainable, but to

eliminate discrimination against the socio-economically disadvantaged and to minimize the temptation to resort to illicit markets.

There are four important arguments for controlled availability of all opiates:

- (a) *The interrelation of two factors; the dependence-producing characteristic of these drugs, leading to compulsive efforts to obtain them, and the absence of legitimate supply. This is at the root of a great many crimes and other antisocial conduct on the part of users. The poor health suffered by many heroin addicts, besides, is more often attributable to the disordered life an addict must lead in order to satisfy his habit than to the drug effects themselves.*

Criminal activity related to the obtaining of drugs would be considerably diminished with the existence of legitimate sources of supply. I am not under the illusion that all drug-dependent persons would accept the conditions of using the legitimate clinics for their drug supply, but, according to responsible observers, over 60% of the opiate-dependent population would be attracted to such a plan and would respect its strictures, and the percentage could be higher.

- (b) *The illicit markets would be deprived of two-thirds of their clientele, with obvious salutary consequences.*
- (c) *The rather mystical qualities and overblown virtues of opiates (in the eyes of users) would assume more realistic proportions in a context of controlled legal distribution, and these drugs would thus lose much of their exotic appeal.*
- (d) *If it is true, as some observers claim, that the early heroin user will often press his friends to try the drug, for both psychological and financial reasons (selling the drug to help finance his own supply, in particular), the incidence of such "contagion" could diminish greatly with the existence of legitimate sources of supply.*

These clinics should be kept under continual surveillance and evaluation during at least the first three years of their operation. For this purpose a special committee or board should be given a mandate to examine the following in particular:

- (a) *the number and characteristics of those who identify themselves as drug-dependent persons;*
- (b) *the operating costs of these "opiate-dependence clinics", in comparison with the costs of surveillance, apprehension, prosecution and incarceration of addicts under a system in which they must lead a deviate and criminal existence;*
- (c) *year-to-year changes occurring in the clinic clientele; and,*
- (d) *the extent of continued contact with and recourse to illicit markets among clinic clientele.*

MEASURES FOR COMBATTING ILLEGAL IMPORTATION, MANUFACTURE AND SALE OF HARD DRUGS

BETTER USE OF POLICE RESOURCES

It is cynical, or at best singularly inept, for the State to keep police forces busy detecting and apprehending cannabis users, even opiate and strong hallucinogen users, while large quantities of hashish, marijuana, amphetamines, hallucinogens and heroin are being smuggled into the country every day and every week, and large quantities of legally manufactured amphetamines are being stolen or diverted from their original destinations and sold on the black market. It defies comprehension how the police can believe it useful, as they claim, to concentrate on arresting heroin addicts, whom they know and who are not necessarily causing any serious harm, while large thefts of medical drugs are being perpetrated and illegal importation of opiates goes on apace, virtually unchecked. The present manner in which police manpower and resources are being employed suggests that the State has no serious policy for the control of drug importation, manufacture and trafficking.

The money and time spent on police surveillance and apprehension of drug users could be much more usefully employed:

- 1) in larger police formations than the present narcotics squads, composed of more highly specialized police personnel with reliable, up-to-date knowledge of the illegal drug transfer and distribution networks (see Appendix B Legal and Illegal Sources and Distribution of Drugs);*
- 2) in surveillance of pharmaceutical manufacturers, including analysis of foreseeable surplus production and what is done with it; and,*
- 3) in detection of illicit laboratories.*

Sporadic, spectacular (but all too infrequent) seizures of large quantities of heroin and cannabis can hardly obscure two facts:*

- 1) there is no shortage of these drugs in Canada; and,*
- 2) on the admission of Interpol itself, barely ten per cent of the traffic in opiates is suppressed by law enforcement.*

The demand for hallucinogens is apparently being met by imports and illicit laboratories.

As for amphetamines, used non-medically, we see from Appendix B that a significant proportion comes from legitimate Canadian and American manufacturers. *We therefore cannot escape the fact that large surpluses of stimulants are being knowingly produced by recognized firms.*

* For 1972, the B.D.D. registers 2 convictions for importing heroin and 33 for importing cannabis; in the same year the courts handed out 11,431 convictions for simple possession of the various drugs prohibited under the Narcotic Control Act.

We have seen that, in the United States, not only have law enforcement agencies been unable to stop the illegal importation, manufacture and trafficking of drugs, but certain of their agents have been party to these criminal activities, with large sums of money passing into their hands. The possibility of a similar situation in Canada should be given close scrutiny.

ADDITIONAL PENALTIES FOR ILLEGAL IMPORTATION, MANUFACTURE AND DISTRIBUTION

Fines and penalties for tax evasion should apply as a matter of course to persons convicted of large-scale illegal importation, manufacture or distribution of drugs.

Criminal law penalties for illegal importation, manufacture and distribution of drugs should be reconsidered and proportioned:

- 1) to the real relative potential for harm of the various drugs;**
- 2) to the quantities illegally imported, manufactured or distributed; and,**
- 3) in the case of traffickers, to the youth and vulnerability of the population reached by the illegal distribution.**

The illegal manufacture of amphetamines or the shipment of legally manufactured amphetamines to fictitious customers or customers of uncertain identity should be punishable by from two to five years' imprisonment and heavy fines. Manufacturers who cannot account for thefts or disappearance of drug inventories should be liable to the same penalties as importers.

THE DANGERS OF IMMODERATE USE OF MOOD-CHANGING SUBSTANCES

The non-medical use of drugs in Canada is largely attributable to the very casual attitude throughout the country toward mood-changing substances in general.

1. The prescribing practices among physicians, spurred by the pharmaceutical industry and its salesmen, have encouraged a "pill-popping" mentality among Canadians.
2. Brewers and distillers have been wooing the populace with assurances that alcohol counteracts a great many evils.
3. Tobacco manufacturers have outdone themselves with their advertising, urging us to smoke for the same reason.
4. The Canadian and provincial governments, either directly with policy and legislation or through administrative decisions by senior officials, have on occasion helped to create and foster a climate in which the use of drugs, medicines and psychotropic substances of every description is

taken for granted; *what is worse, they quite commonly authorize penitentiary and prison wardens, and also medical and administrative authorities of hospitals, mental health services and homes for the aged to use or permit the use of tranquilizers, barbiturates and "sedatives" in all forms, gas, liquids, tablets, capsules and injections, daily and excessively, to a degree unjustifiable either medically or morally.* Some institutions no longer even feel it necessary to justify multiple drug use for controlling or calming their inmates or putting them to sleep.

5. Both the State and the medical profession seem more obsessed with keeping control over the use of mood-changing substances than concerned about their harmfulness or the health and well-being of the people. Availability and use are supposedly controlled by prescription, but prescribing practices are ill-founded to say the least; the young and the poor, for instance, are denied access to medical drugs that well-heeled adults can and do have prescribed for them when and how they want, with the result that the privileged often make unnecessary, excessive and careless use of them, while the rest look on, and naturally enough are tempted to use them too if the opportunity arises.

RECOMMENDATIONS

1. **At the close of three and one-half years of study, inquiry and reflection, my most urgent recommendation is that a permanent COMMISSION FOR THE SUPERVISION OF THE MEDICAL USE OF DRUGS be established at the earliest possible moment, under the authority of the Governor-General-in-Council, to examine the prescribing practices current in the medical profession and rectify them. It is also urgent that it inquire into the use of medical drugs in prisons, penitentiaries, mental hospitals and institutions for the aged and for disturbed and hyperkinetic children. Thirdly, this commission should exercise close and continued surveillance over all aspects of the importation and manufacture of drugs for medical purposes, especially amphetamines, barbiturates and tranquilizers.**
2. (a) Simple possession of opiate narcotics and strong hallucinogens should cease to be classed as a criminal offence under Canadian criminal law statutes.
(b) There should be no offence subject to criminal law sanctions for possession or use of any of the drugs.
(c) Opiate narcotics should be legally classified with the controlled drugs.
(d) Opiate narcotics and strong hallucinogens found during police investigation of a suspected crime or misdemeanour should be subject to confiscation, failing production of a medical prescription or other justification of possession.

3. Provincial or regional clinics should be established in Canada with responsibility for the clinical and scientific determination of the true state of opiate dependence of any person who consents to submit to the tests necessary for the purpose.
4. These clinics, having determined a person to be a drug-dependent, should also be responsible for providing him with the substances necessary to him, at very moderate prices.
5. Special committees or boards should be appointed by federal and provincial health ministers to assure strict supervision of the operations of these clinics and to carry out a continuous evaluation of them during at least their first three years of operation.
6. Genuine efforts should be made by the various levels of government, in cooperation with the medical profession, colleges of pharmacists and parent and teacher associations, to create in Canada a climate of moderation, restraint and control with regard to the use of drugs for medical purposes, tobacco, alcohol and other drugs.

The pharmaceutical, brewing, distilling and tobacco industries, having contributed to the current popularity and abuse of pharmaceutical products and psychotropic substances, should take steps to inform the public fully and effectively in future, with particular emphasis on the importance of moderation in the use of these harmful substances.

Educational campaigns, to be effective, must observe three conditions: the information must be strictly accurate; the authority of those communicating the information must be beyond question; information directed toward drug users must be couched in language current in their milieu, reflecting accurate and unpatronizing understanding of them.

Additional Conclusions and Recommendations
of
Ian L. Campbell

INTRODUCTION

The major point of difference between my colleagues and myself is the matter of the most appropriate response to the problem of the opiate narcotic user.

Before presenting my conclusions I have reviewed at some length problems concerning the control of the illicit production and distribution of the opiate narcotics and the role of the user of these drugs as a pernicious influence leading others to use them. These subjects are dealt with in Appendices B, C and D. I refer to them here not to suggest that my colleagues are any more optimistic than I about the prospects for control of production and distribution or that they treat less seriously than I the social dangers of the user. We are, I am sure, in full agreement on these matters. I raise them, in summary form, simply to set the context of my recommendations and to underline the factors which have been particularly important in leading me to my conclusions.

THE CONTEXT FOR SOCIAL POLICY

THE RAPID INCREASE IN THE USE OF AND ADDICTION TO THE
OPIATE NARCOTICS

Notwithstanding the real inadequacies in our statistics it is clear that there have been recent alarming increases in the non-medical use of the opiate narcotics, particularly heroin and methadone. Not only has the population of users and addicts increased, but it appears to be growing at an accelerating rate. For instance, the number of 'street addicts' reported by D.N.C. rose in 1968 by 123, in 1969 by 275, in 1970 by 918, in 1971 by 1,728 and in 1972 by 2,460. The actual number of new users was no doubt very much larger in each year. There seems little reason to believe, on the basis of either Canadian or American data and experience, that the problem

has peaked. Moreover, rather large populations at high risk of beginning opiate narcotic use are present in Canada.

It is evident that over an extended period of time increases in heroin use often come in waves. For example, in Chicago there was a marked increase in use immediately following the Second World War. This particular epidemic reached its peak in 1949. There was then a decline in the numbers beginning heroin use during the 1950s and an increase again in the later 1960s. This pattern has been observed in a number of other cities. The phenomenon is mentioned here because of the risk that any drop in the numbers of new users appearing in the statistics of a particular year might be too readily taken as an indication that the problems of opiate narcotic use are coming under control.

It must also be pointed out that a study of national or even provincial statistics can be misleading. For instance, an increase of five hundred users in British Columbia might mean that a steady increase in use had occurred in a localized part of Vancouver. However, it might also mean that heroin use had entered fifteen communities where it had not been present before and had spread explosively within these communities with a high probability of becoming endemic in them. The second possibility would perhaps be far more serious than the first because of the potential for a spread of use to neighbouring communities and because the endemic presence of opiate narcotic use provides a base for a rapid increase in use and dependency at a later date.

PRINCIPAL CAUSES OF THE INCREASE OF OPIATE NARCOTIC USE

It is clear that we lack any full understanding of the causes of opiate narcotic use. Indeed what may be said accurately of the causal pattern in one area may not apply in another and causal patterns change through time. The same problem exists in generalizing about drug-using careers. Details of career descriptions may be wholly valid only for a particular locale at a particular time.

However, two important, obviously valid generalizations about the necessary conditions for a spread of opiate narcotic use are possible. Use only spreads when the drugs are available and when there is a population of users present as a pernicious influence. A third generalization can be made with only slightly less confidence; the new opiate narcotic user is more likely to influence non-users to experiment with these drugs than is the person with a long-standing pattern of use and addiction.

The Availability of Opiate Narcotics

In the nature of things the ability of the Government to control the entry of opiate narcotics into Canada will be very largely dependent on the ability of the American Government to control the general flow of these

drugs into North America and its ability to influence other governments to inhibit the growth of the opium poppy, the production of opium derivatives or the production of synthetic narcotics and the movement of drugs within and across their borders.

The Americans have achieved increasing success in a number of their policies. Their influence has reduced the production of opium in Turkey. At least partially as a result of American pressure, the Government of France is now taking effective steps to attack the manufacture of heroin. The United States appears to have gained an increased cooperation from some South American governments in making the shipment of drugs through South America more difficult and in breaking up some trafficking rings.

However, even the total elimination of poppy growing in Turkey will not now produce any significant shortage of raw opium. Some of the opium that has come out of Turkey in recent years has not been grown in that country. There are millions of acres of land available in other countries which are suitable for poppy cultivation, and much of that land is within the borders of states not clearly subject to American influence or indeed under the effective control of the national government concerned. In some regions, such as South East Asia, poppy acreage can presumably be expanded. In other regions, for example South America, there is little reason to think that poppy cultivation cannot be introduced. Consequently, I cannot be confident that in the foreseeable future the American posture of curtailing poppy cultivation will have much more than a disruptive influence on the production of raw opium.

The new enforcement activities of the French police in moving against the manufacture of heroin have had a disruptive effect on the flow of the drug from Europe to North America. However, it would be naive, on the basis of existing evidence, to think that this will be more than a relatively short run dislocation of production. It is not difficult to think of countries to which European manufacturing operations could be moved either in Europe or North Africa. There are a number of European states that do not have strong anti-drug police operations and there are a number which cannot be assumed to be sympathetic to the American case or receptive to American pressure. It is also noteworthy that the impact of the French moves was blunted by an increased flow of heroin to North America from other sources—notably South East Asia. In other words, the world supply of heroin seems more than adequate to compensate for even a major blow to production potential. I would expect that the lost French production will be replaced in Europe or North Africa very quickly indeed.

It must also be pointed out that the total eradication of the opium poppy would not eliminate the availability of narcotics in North America because of the substitutes for opium and its derivatives that are or could be made available. First, there are drugs such as methadone and pethidine (Demerol®) which are wholly synthetic. The processes by which they are manufactured are available in the chemistry and pharmacology journals. The raw materials

required for the production of these synthetics are readily available and not potentially subject to rigorous international or national control. While skilled chemists are needed to supervise or carry out production, there is no reason to think that the billion dollar narcotics industry would have difficulty in buying whatever skill are needed.

Unfortunately, natural or semi-synthetic narcotics can also be produced from poppies other than the opium poppy (*Papaver somniferum*). Thebaine is found in the opium poppy but also in many other forms of poppy that do not yield opium. As is pointed out elsewhere in this report, some thebaine derivatives have morphine-like effects and have a potency of up to more than 1,000 times that of morphine or heroin. Some of these derivatives are in commercial production. Leaks of these drugs from legitimate manufacturers are bound to occur in time. But far more important, there is a source of narcotics apart from the opium poppy that can be exploited.

For these reasons, and others, I think it would be less than prudent to assume any long-term decrease in the international availability of heroin or equivalent drugs. Indeed a persuasive case can be argued that we should assume an overall increase in production or productive potential.

The international heroin distribution system has grown rapidly. There has been a marked proliferation of routes and networks and of smuggling techniques. Consequently, the overall impact of arrests for trafficking is reduced. Profits are more than high enough to ensure that there will be no problems of recruitment. The world heroin supply system, while not monolithic, has demonstrated that it has the reserves and the flexibility to respond quickly and effectively to any injury that has so far been inflicted. There is no evidence at hand to suggest that this will not continue to be the case. International officials concerned with the enforcement of drug laws admit that only a very small proportion of narcotics in transit can be intercepted.

Reluctantly I am forced to the conclusion that our best efforts to control opiate narcotic production and international trafficking can do little more than be a costly nuisance to the international market. I do not conclude that these efforts should be reduced, but only that it could be dangerously naive to expect significant results in terms of reducing the long-term availability of illicit narcotics in North America.

At the national level there are further reasons to feel pessimism about our ability to control availability of opiate narcotics. One of the most important of these is the enormous growth in the number of drug distribution systems both for heroin and for other drugs. We already have evidence in Canada of individuals who have been multi-drug dealers now handling heroin. Similarly in the United States there seems to have been an increase in the number of dealers, at various distribution levels, who handle a variety of drugs including heroin. We also have illicit drug distribution operations in far more centres than ever before which are capable of making heroin available to almost any city, town or village in Canada.

It therefore seems virtually certain that one of the two necessary conditions for a continued increase in the use of opiate narcotics is and will continue to be present in a form that will facilitate increased use in all parts of the country.

Ordinarily there must be the presence of a supply of opiate narcotics and the presence of a population of users for there to be a significant increase in use. However, there are exceptions. The most important exceptions appear to be instances where either some dealer moves to 'push' the drug, that is to say, actively sell the drug to non-users, or where there is a population of non-users who are curious about heroin and anxious to experiment with it. Overall the 'pusher' appears to have played a less important role than the public has assumed. A major reason has been the danger of detection and arrest to which the 'pusher' is exposed in approaching anyone other than a known user. However, this danger is to some extent attenuated where there is a population of known illicit drug users and we have had reports of heroin being introduced to the illicit drug-using population by dealers. We have also had reports of an increasing curiosity about heroin that has acted to create a demand. This has been found, for instance, among some populations of promiscuous, multi-drug using teenagers. Consequently, the fact of a steady availability of heroin in an increasing number of centres will in itself assure some increase in heroin use and hence of addiction. It is, of course, difficult to estimate the extent of the increase which will result.

The Presence of Opiate Narcotic Users

The evidence available indicates clearly that the overwhelming majority of those who use heroin began their use subsequent to and very largely as a consequence of association with users. Whether we designate the users as being infectious or contagious or a pernicious influence is not of great importance in this context. The fact of the matter is that their presence contributes to the use of opiate narcotics by those who have not previously used these drugs.

The role of opiate narcotic users as a pernicious influence fostering the spread of use of these drugs is discussed in Appendices C and D. As we report there, research has been consistent in finding that almost invariably the new user is introduced to opiate narcotic use in a small group setting of friends. Often the new user's presence is fortuitous although, clearly, some curiosity about the drugs and a readiness to experiment must usually exist. It appears that the experienced user is often admired as a person or for his life style by the beginner. There are certainly instances when group pressure is applied by users, and particularly new users, to encourage non-users to experiment.

It seems that typically heroin use begins in a community or neighbourhood by the return of one or two individuals who have begun use elsewhere. These foster interest in the drug and introduce use to a few friends. These

friends in turn introduce others or at least play a role of maintaining interest by their own example and presence and often by facilitating local access to opiate narcotics. At first use seems to spread slowly, but as the number of users grows there is the risk of an explosive increase in use. Studies in the United Kingdom of the spread of heroin use that have now been replicated in the United States have found a pattern of heroin use initiation that is represented in Figure 1 below.

The evidence overwhelmingly supports the opinion that the use of heroin is spread through contact with those who actively use the drug. Indeed, the evidence is conclusive enough to probably warrant a generalization that the presence of opiate narcotic users is almost always a necessary condition for a significant increase in the use of these drugs.

Among users it is also clear that the new user is most apt to be the contagious or pernicious agent. The user who has not yet become addicted or who does not recognize the fact of his addiction seems more prone to counsel others that heroin can be used 'wisely' with little or no risk of addiction and to hold himself up as living proof of this fact. Again, there is much in the research literature to support this position. For example, Hughes and Crawford in their Chicago study report,

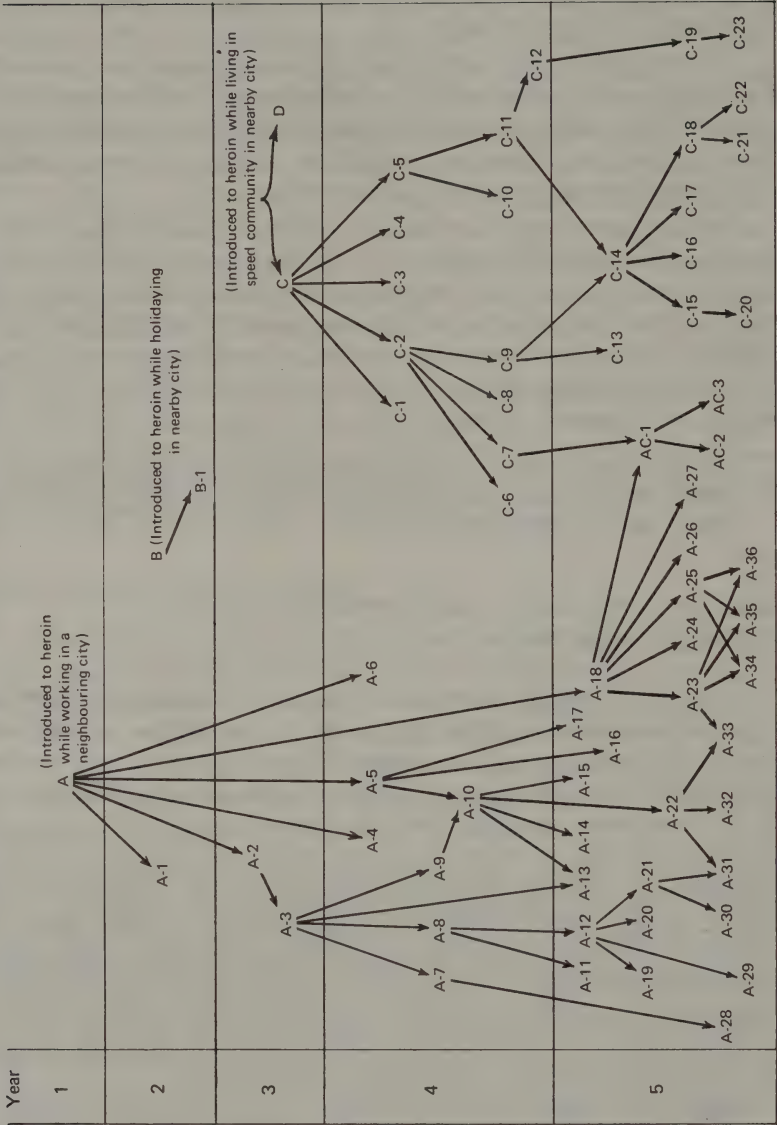
... the disorder tends to be most contagious during the early stages, i.e., it is spread by new users and the newly addicted. This suggests that new outbreaks must be identified early.

INCREASE IN THE SIZE OF THE POPULATION AT RISK TO OPIATE NARCOTIC USE

The sharp increase in the rates of opiate narcotic use and addiction are in themselves indicators of the increase in the size of the population that has been at risk to the use of these drugs. There is, however, no reason to think that their use will not continue to spread in Canada for some time to come. There is evidence appearing that the use of heroin is levelling off in the United States. But it is levelling at a point that involves a much higher proportion of the total population than has as yet become involved here. Even if we note that much of the heroin use in the United States has been in 'ghetto' populations and that comparable populations do not exist to any great extent in Canada, we are still well below the levels of American non-ghetto use. Given time, Canada's rates of drug use tend to move towards those reached in the U.S. Hence, it would not appear prudent to expect that the spread of heroin use is about to level in Canada.

There are certain populations that appear to be particularly at risk. Perhaps the most obvious are the regular, high-dose, intravenous amphetamine users — the 'speed freaks'. As noted elsewhere in this report, the 'speed freak' population has not decreased markedly although it has dispersed and become far less visible than it was in the summer of 1970. Much of this population is apparently replaced approximately every two years since that

FIGURE 1
THE SPREAD OF HEROIN USE IN A HYPOTHETICAL COMMUNITY



seems to be the maximum period for amphetamine use for most individuals. It would appear that many of these persons have become involved in the use of heroin.

There have been a steady series of reports of curiosity about heroin among young, promiscuous multi-drug users. While there may be some tapering off of the size of this population, it remains significant and constantly draws new recruits. We know far too little about the epidemiology of non-medical drug use to predict with any degree of confidence that it will not blossom again or at least maintain roughly present levels. These young people, because of their naivety or lack of concern with the consequences of their drug use, are at high risk to heroin use and dependence.

During the past two years there have been reports of heroin use among populations that do not have a history of illicit non-medical drug use. In particular this has been noted among the children of Italian immigrants in Toronto. In the past such populations have been at risk to many forms of delinquent and deviant behaviour. There seems no reason to be sanguine about the possibility of wider opiate narcotic use among such people—and certainly their numbers have increased in Canada.

In summary then, there exists in Canada a number of populations that appear at particular risk to a further spread of heroin use.

THE NATURE OF THE OPIATE NARCOTICS

The psychological effects of the opiate narcotics and the consequences and risks of their use are set out fully in Appendix A. In this context it is only necessary for me to note the particular qualities of these drugs that lead me to believe that their use should be treated in law rather more severely than that of other drugs in current non-medical use.

Many attempts have been made to rank drugs in an order of relative potential for harm. If a single criterion of harm is accepted it is perhaps not difficult to construct such an order. For example, if we accept as the focus of our concern the probability of continuing general physiological deterioration as a direct result of the use of the drug, then alcohol and tobacco must be taken as among the most dangerous drugs in current non-medical use, and heroin and the other opiate narcotics as among the least dangerous. If we make the criterion the probability of continuing general physiological deterioration as an indirect consequence of dependent use of a drug, then alcohol and the opiate-narcotics would stand together as among our most dangerous drugs. If we take short-run physiological deterioration as a direct and indirect consequence of the use of a drug, then the amphetamines would probably stand as our most dangerous drug, the opiate narcotics and alcohol would occupy a much lower place and tobacco a lower place still. If we focus on probable use as a means of suicide then the barbiturates have

probably the greatest potential for harm and the opiate narcotics and alcohol are relatively safe. If we give a high priority in determining potential for harm to such criteria as the risk of accidental death associated with use or the risk of virtually incurable drug dependency developing quickly as a result of use for even a short period of time, then the opiate narcotics are certainly among the most dangerous, if not the most dangerous. If a high priority is given to a drug's capacity to produce socially undesirable behaviour such as theft or prostitution, then the opiate narcotics are among the most dangerous drugs in the present North American social context. The amphetamines and alcohol, on the other hand, are ordinarily far more prone to lead to crimes of violence. If we are concerned with the potential of drug use to profoundly alter personality and character, and with the consequences of such changes for the user and those close to him, then the opiate narcotics are among our most dangerous drugs. Overall, I doubt that a single, meaningful rank order of the potential for harm of drugs in current non-medical use can be created. It is probably wiser to point to particular dangers associated with the use of a drug or family of drugs.

In coming to my conclusions about appropriate social policy with respect to the opiate narcotics, I have given weight to the following facts.

The opiate narcotics are virtually unique in their capacity to produce a state of severe dependence quickly and insidiously. Once established, opiate narcotic dependency can be managed but for all practical purposes, at this time, is virtually incurable.

It is obviously true that dependency is not an inevitable consequence of the experimental or occasional use of opiate narcotics. There are some few individuals who have used these drugs for years and have not become dependent. Virtually all addicts believed, when they began use, that notwithstanding the dangers of addiction they could avoid this consequence. Virtually all believed that their use was still 'under control' when they in fact had become dependent. While data is not available from which it is possible to estimate the proportion of those who ever used these drugs non-medically who later became addicted, it can be said that the proportion is high. All who use these drugs non-medically must be considered to be at significant risk of becoming dependent.

Those who became dependent on the opiate narcotics have as a result become significantly diminished in their capacity to act as free men—more than is the case with virtually any other form of dependence. The greatest part of their loss of freedom comes from the simple necessity of devoting a large proportion of their time to acquiring (usually illegally) the money to buy drugs. Thus the range of choices open to them vocationally, intellectually, recreationally, socially and geographically is severely curtailed. This loss of freedom to determine the course of one's own life and the use of one's own potential is surely a loss that renders them effectively less human than they would otherwise be.

The nature of opiate narcotic dependence in the present social context, and in any social context which I care to contemplate, virtually ensures that the addict will maintain and increase the criminality that usually precedes his addiction or will develop criminal habits. Insofar as most addicts were criminals before they became addicted it is not proper to assert that the whole of their criminality is a consequence and a cost to be attributed to their drug use. But it is clear that the amount of their predatory crime increases subsequent to addiction. An important result is the further loss of freedom that follows from conviction for these crimes.

Moreover, their criminality, typically in the form of drug peddling, burglary, shoplifting and other forms of boosting, pickpocketing and pan-handling and of prostitution in the case of females is a heavy cost to society. The fact that as much as half their illicit income may come from selling opiate narcotics presents a serious problem in facilitating use among others.

While it is true that the total cost of crime attributable to alcohol exceeds that attributable to the opiate narcotics, it is clear that the probability of an opiate narcotic-dependent person supporting himself by crime is far greater than in the case of dependency on any other drug, including alcohol.

The life style that is the virtually inevitable consequence of illicit opiate narcotic dependency has other costs. Most addicts suffer from malnutrition and are particularly subject to diseases associated with malnutrition and lack of hygiene. These consequences probably follow mainly from the life style of the addict but can certainly be attributed in part to the psychological effects of the drugs.

I am also concerned with the impact of the adoption of their life style on the relatives and friends of the addict. I find it hard to conceive of more dreadful information than the news that one's child has become addicted to these drugs. I suspect that perhaps unconsciously much of our fear of the opiate narcotics springs from the knowledge or well-founded suspicion that dependency on these drugs profoundly and irrevocably changes the person—they become different not only in life style but in personality and spirit, their reactions can no longer be predicted by those who have been close to them, their promise and whatever was hoped for them is gone, and their future is at best bleak.

Some of these undesirable consequences of addiction could no doubt be prevented if opiate narcotics were made readily and cheaply available to the user and the addict without stringent controls and monitoring. But in view of the marked increase in use and hence addiction that would certainly follow, the costs would clearly far outweigh any possible benefits.

More than other drugs used non-medically, the use of opiate narcotics is likely to produce accidental sudden death. While most deaths associated with drug use by addicts are clearly not due to a simple heroin overdose, as is generally believed, the fact is that a large number of heroin users die suddenly while injecting this drug.

THE OBJECTIVES OF SOCIAL POLICY

THE PRIORITIES OF SOCIAL POLICY

In my opinion the proper order of priorities in developing social policy with respect to the opiate narcotics user is:

- 1) The prevention, as much as is possible, of the further spread of opiate narcotic use and addiction.
- 2) The treatment of the user or addict to render him less socially dangerous.
- 3) The treatment of the user or addict for the purpose of improving his chances of being a useful member of the community and of improving the quality of his life.

Since, in virtually all cases, the presence of opiate narcotic users is a necessary condition for the spread of use, it follows that isolating users or otherwise reducing their capacity to influence perniciously and assist others to use these drugs is a necessary step and probably the most important single step that can be taken by a country such as Canada in the prevention of an increase in opiate narcotic use and addiction.

Clearly, short of placing all users in indefinite quarantine, there are no means of ensuring that they will not be a pernicious and contagious influence. However, if they could be officially identified and if their drug use could then be eliminated or controlled so that they could no longer stand as directly observable models of free opiate narcotic use, and incidentally a source of supply to the prospective user, the danger would be significantly lessened. If they could be prevented from presenting themselves as living examples of the fact that opiate narcotics can be used without serious consequences, the danger would also lessen.

It is obvious that these ends can only be achieved by making it highly probable that those who use the opiate narcotics can be brought to official attention in a way that renders them subject to control, and by having the means of monitoring and controlling their behaviour.

I believe that these ends can be achieved, that this can be done without recourse to police state methods, with adequate safeguards to the innocent and in a manner that serves the long-run best interests of the opiate narcotic user.

However, unless the steps that I propose are implemented in the near future I am not sure that they provide a practical solution to the problem. The present population of heroin and methadone users is of a size and geographic distribution that makes it conceivable to exert a close control over its members, albeit with a heavy expenditure of resources. However, if the numbers involved continue to increase at present rates, or even rather more slowly, and if we approach American rates of use or if the present

population or a larger one disperses geographically, then the outlook for effective action would be far more bleak and the price far higher.

THE EFFICACY OF EXISTING LAWS AS A DEVICE OF CONTROL

The existing laws relating to the possession of opiate narcotics seem to me to lack the potential to ensure early official detection of opiate narcotic use and to lack the potential to exert control over a significant proportion of users and addicts. The necessity of proving possession presents the police with a virtually insuperable problem in bringing most users before the courts. As has been pointed out elsewhere in this report, many users have the drug in their possession for a very short time indeed—often for only a few moments in the course of a day. Unless they are apprehended during those moments no evidence is available to the police. Moreover, when the drug is in the user's possession it is frequently carried in the mouth and is swallowed at the first sign of police intervention. This fact necessitates the rough action that the police take towards users in attempting to make arrests and adds greatly to the difficulty of securing evidence.

The arrest and conviction statistics presented in this report, if compared to the estimates of use, provide convincing testimony of the inadequacy of the present laws as a device for detecting and controlling the opiate narcotic user. It is likely that fewer than four per cent of the addicts in Canada are currently being convicted each year and that this number may be fewer than one per cent of all who are addicts and occasional and experimental users.

RECOMMENDATIONS WITH REFERENCE TO THE LAW RESPECTING THE OPIATE NARCOTIC USER

So long as the law only prohibits the unauthorized possession of opiate narcotics, I can see no way in which it can become an effective device to control the opiate narcotic user and hence a really effective device to curtail the further spread of the use of these drugs. This would remain true even if the police were granted very large reinforcements. Moreover, as use spreads, it seems to me that the relative effectiveness of the police is bound to decline.

Consequently, **I recommend that the law be amended to make the unauthorized use as well as the unauthorized possession of opiate narcotics an offence.** The unauthorized possession of opiate narcotics or the presence of an opiate narcotic in the urine, blood or other body fluid without lawful excuse should be taken as proof of opiate narcotic use. To enforce adequately such legislation, it would be necessary to authorize the police to require

those whom they believe, on reasonable and probable grounds, to be using these drugs to submit a sample of urine, blood or other body fluid for analysis.* Continuing association with known opiate narcotic users, the clear appearance of being under the influence of an opiate narcotic (on the nod) or the otherwise inexplicable presence of injection marks visible on the body would certainly be reasonable and probable grounds to presume the use of opiate narcotics.

Clearly a number of safeguards would be required in such legislation. I would strongly recommend that at least the following be included:

- a) A part of any sample taken should be returned to the donor in a sealed container for use by the defence if a charge is laid and the result of the analysis is submitted as evidence.
- b) Those required to give a sample should be given, on request and before the sample is taken, a written statement of the reasonable and probable grounds on which the police are acting.
- c) The police should be required to submit the details of their use of such authority, including a statement of the grounds on which it was used, to a judicial body for a regular and public review.

Those whose urine, blood or other body fluid is found to contain an opiate narcotic should be charged with the unauthorized use of these drugs. Those arraigned on this charge should, *in all cases*, be remanded in custody for one week for the purpose of determining whether or not they are dependent on the opiate narcotics.

Those subsequently found guilty of the unauthorized use of opiate narcotics but who are not dependent on these drugs should on the first and second conviction receive a one- to three-year sentence with the possibility

* It is clear that thin-layer chromatography (TLC) as presently generally used in Canada is not sufficiently accurate to provide grounds, by itself, for conviction because of the risk of a false positive result. However, this method remains the best technique for widespread use. I would recommend that until better methods are available it should ordinarily be used, but when an opiate narcotic is detected by this method further tests should be applied and a positive result on two tests should be required for conviction. Consequently, enough fluid should always be taken to allow two analyses to be performed.

There is good reason to believe that within a short time the radioimmunoassay, FRAT and related methods will be able to meet all reasonable demands for accuracy, discrimination, economy and speed. When this is the case a positive result by one of these methods alone should be taken as adequate grounds for conviction.

The extremely sensitive immunoassay methods have other advantages as well. Using such techniques, it may be possible to detect the presence of opiate narcotics in the system for several days after use. Urine, blood or, possibly, saliva and sweat samples may be employed. At the present these techniques do not efficiently distinguish codeine from morphine, but it is expected that this difficulty will be overcome shortly.

Since heroin is converted to morphine and other metabolites in the body, it is generally difficult to efficiently discriminate between the use of these two drugs. However, I find that this is no problem since I would regard the illicit use of morphine as being as serious as the illicit use of heroin, methadone or the other narcotics excepting the low-dose use of codeine.

of immediate release on parole at the discretion of the court, after appropriate consultation with the Parole Board, with the following conditions at least:*

- 1) That they refrain absolutely from the unauthorized use of opiate narcotics, cocaine and amphetamines.
- 2) That they submit urine, blood or other fluid samples for analysis as often as necessary to determine *any* opiate narcotic use for a period of six months and thereafter as required during the period of probation.†
- 3) That they refrain from association with opiate narcotic users and others as required.
- 4) That they accept counselling or other appropriate care as required.

Those who are unwilling to sign a statement accepting the terms of parole should not be released from custody.

Those responsible for the supervision of parole must be given reasonable authority to excuse occasional breaches of the terms. However, those brought before the Parole Board for parole violation should be liable to be imprisoned for the balance of the period of their sentences.

Conviction a third or subsequent time should render the offender liable to imprisonment for a period of two to five years. If the offender is subsequently released on parole, terms similar to the terms above should be applied.

Those found guilty of the unauthorized use of opiate narcotics and who are shown to be dependent‡ on these drugs should on the first and second conviction receive a three- to ten-year sentence with the possibility of immediate release on parole at the discretion of the court, following appropriate consultation with the Parole Board, with the following conditions, at least:§

- 1) That they refrain absolutely from the use of unauthorized opiate narcotics, cocaine and amphetamines.

* A one- to three-year sentence with immediate parole is specified in this recommendation to ensure continuous supervision for a lengthy period of time. I have no objection in principle to providing this supervision by means of suspended sentence and probation but under existing law suspension of sentence and probation can be applied only when an offence carries no minimum sentence. While I am concerned with the lightness of sentences that have recently been imposed on many of those found guilty of opiate narcotic possession, I recognize real advantages in allowing the courts some measure of flexibility in dealing with these cases. However, available evidence strongly suggests that drug users require lengthy periods of close supervision if their rehabilitation is to be achieved.

† Until methods of analysis are improved, body fluid samples should be required daily or at least every second day. Hopefully methods will soon be available to accurately find opiate narcotics in the system several days after use. When this is the case, longer intervals between samples could be safely allowed.

‡ The determination of dependency must be based on clinical evidence. The decision as to whether dependency exists should rest with the court and should be based on evidence from physicians with special competence in the matter and others appropriately qualified.

§ All available evidence suggests that a lengthy period of supervision is imperative if there is to be any real hope of success in dealing with those dependent on the opiate narcotics (see Appendix K). The relatively low levels of success that have been achieved with addicts on probation and parole in Canada (see Appendices J and K) point to the need for lengthy periods of close control and supervision.

2) That they submit urine, blood or other body fluid samples for analysis as often as necessary to find *any* opiate narcotic use for a period of two years and thereafter as required during the period of their probation.*

3) That they accept counselling and treatment as required by those responsible for their probation.

4) That, if after other treatment approaches have been tried for a reasonable period and they are unable to remain drug-free, they accept high-dose methadone maintenance indefinitely.

It has frequently been found that continued association with opiate narcotic users is a major barrier to the successful rehabilitation of those who are opiate narcotic dependents. Consequently, **the courts and parole officers should have the authority to require the offender to change his place of residence.**

In the case of those with longstanding or severe addiction, the court should have authority to impose high-dose methadone maintenance as an initial condition of parole. Unwillingness to accept the terms of parole or violation of the terms of parole, when brought to the attention of the Parole Board, should render the offender liable to imprisonment for the balance of his sentence.

Those found guilty of unauthorized opiate narcotic use a third or subsequent time and who are found to be dependent on these drugs should receive a sentence to indefinite imprisonment with the possibility of parole on conditions similar to the conditions of parole noted above.

Wherever possible a separation should be made between the personnel responsible for parole supervision and those responsible for the treatment of persons under sentence, although there should be cooperation and consultation between them and *both should come under a single agency*. If treatment personnel are made responsible for the collection and analysis of urine or blood samples, the results of these tests, if they show the presence of a prohibited drug, should be automatically reported to the parole authorities. The supervision of opiate narcotic users requires specialized knowledge and experience. Therefore personnel should be specially selected and trained for this work.

Those imprisoned for the use or possession of opiate narcotics should, whenever possible, be confined apart from other prisoners, preferably in separate institutions, and should be further segregated according to the extent of their involvement in and commitment to the opiate narcotic-using culture. Clearly, a basic purpose of their incarceration should be quarantine.

* Until methods of analysis are improved, body fluid samples should be required daily or at least every second day. Hopefully methods will soon be available to accurately find opiate narcotics in the system several days after use. When this is the case, longer intervals between samples could be safely allowed.

Provision should be made in the case of those charged with the use of opiate narcotics to conduct the trial in camera at the request of the accused and at the discretion of the court. The purpose of this provision is to keep secret the identity of the accused and hence to facilitate rehabilitation, particularly in the case of those who appear to have been experimental users of the opiate narcotics.

Those convicted of unauthorized opiate narcotic use who remain absolutely drug-free while on parole or otherwise at large during a period equal to the length of their sentence should be authorized to withhold the fact of their arrest and conviction in such matters as employment applications. If at some time during the course of the sentence an opiate narcotic or other illicit drug is found in a urine or other body fluid sample, then an opportunity should be provided for them to continue submitting samples beyond the end of their sentence to establish a drug-free period equal to the length of the sentence and to thus qualify for the benefits of these provisions.

My recommendations require the enactment of special parole provisions for opiate narcotic offenders. At the present time the courts in Canada play no role in the decision to release a prisoner on parole. This decision, except in cases of murder, is exclusively under the jurisdiction of the National Parole Board. While the Board may release an offender at any time, it is extremely unusual for it to do so until a significant portion of the sentence has been served in prison. I see no reason to require the imprisonment of all found guilty of opiate narcotic use; however, I am convinced that all require a prolonged period of supervision and control. Consequently, my recommendation requires that the courts be granted authority to grant parole at the time of sentencing. An alternative approach would have been to recommend the use of suspended sentence and probation. I have rejected this alternative for a number of reasons. For instance, a suspension of sentencing can only be granted when an offence carries no minimum sentence, and I am strongly of the opinion that a minimum sentence is absolutely required in dealing with opiate narcotic users.

The efficacy of my proposals is clearly dependent upon the ability of the police to identify a significant proportion of opiate narcotic users and to secure convictions against them. The development of new techniques for the analysis of body fluids which will detect the presence of narcotics many hours after use, and potentially several days after use, gives reason for confidence on the latter point. The identification of users is a different matter. Six or seven years ago the police knew the identity of a very high proportion of heroin users. Since they were concentrated in distinct areas of a very few cities their task was relatively easy. Today this population has not only grown but has dispersed to many communities, principally in British Columbia, Alberta and Ontario. However, both Canadian and American evidence indicates that within a given community the opiate narcotic users tend to cluster in 'copping areas' which are not difficult to find. While this population may not be as visible as was that of the speed freaks

in 1970, it is very much more visible than most other illicit drug-using populations. In the case of addicts the necessity of regular and frequent purchases helps to maintain visibility. Occasional and experimental users, coming as they do largely from the ranks of the speed users or the promiscuous multi-drug users, also should not be very difficult to detect, granted adequate police personnel and special undercover operations.

It will no doubt be argued that these recommendations are extremely severe. This is obviously true. But I regard the opiate narcotic user as posing a potentially grave danger to society. His presence is often an essential condition for the spread of opiate narcotic use. New users pose a special threat because of the greater risk that they will proselytize and make statements minimizing the risk of opiate narcotic use. Their presence as opiate narcotic users clearly constitutes a real threat to the health, welfare and operative freedom of others. Unless a very high proportion of them are detected and brought under rigorous control, as regards their drug use, I see the real probability of a further significant spread in opiate narcotic use.

I believe that my recommendations provide the opportunity for those convicted of opiate narcotic use to limit drastically the impact of their sentence on their own freedom. So long as they are prepared to refrain from the unauthorized use of opiate narcotics, cocaine and the amphetamines they can be at liberty to lead perfectly normal lives. The limitation of freedom imposed by the requirement to submit urine, blood or other fluid samples is not in itself a severe penalty or hardship and is certainly in their best interests. To be an effective check on unauthorized drug use, it is necessary that the sample be always provided in the presence of a witness. But there should be no great difficulty in making arrangements for the sample to be taken close to the offender's residence or place of work at a hospital, pharmacy, physician's office or other appropriate site.

It may be argued that requiring urine, blood or other fluid samples from those suspected of unauthorized opiate narcotic use is a violation of proper civil liberty or forces an individual to provide evidence against himself. However, we have accepted a strikingly similar precedent with the compulsory use of breathalyzers for the detection of alcohol intoxication. In the case of a urine, blood or other fluid sample, it should be readily possible to provide the suspect with a part of the sample in a sealed container to prevent any risk of evidence being fabricated and to allow for independent analysis. This safeguard is not as yet possible when breath samples are taken.

It is clear that the implementation of my recommendations would be costly. Some large number of additional police will be required as well as specially trained parole and probation officers. However, great as these costs would be, I am convinced that they would, in the long run, be far less than the direct and indirect costs of a further significant increase in use.

I would further submit that the level of control of the opiate narcotic user that my recommendations could provide would strike a very severe blow at the illicit opiate narcotic distribution system by drastically reducing demand. The result would probably be a lessening of the availability of heroin. This, in itself, could contribute further to the prevention of a further spread of use.

It has been pointed out in this report and in our *Interim Report* that the existing laws compel the police to deal with those suspected of opiate narcotic possession in a rather rough manner that typically involves breaking down doors and 'throttling' suspects to prevent the loss of necessary evidence. While the necessity of such actions cannot be denied, it must be regretted. The change from a possession of narcotics to a use of narcotics emphasis would eliminate the need for virtually all such police acts since surprise would no longer be of the essence except in cases of suspected trafficking.

I believe that my recommendations would, if implemented, have an immediate deterrent effect of reducing the amount of opiate narcotic use among non-addicts. This reduction would in all probability be significant enough that it should be taken into account in a calculation of the costs of implementation or of feasibility. It is my opinion that my recommendations can be applied with a high probability of success to a population of users of opiate narcotics of the size which we estimate with its present pattern of distribution. I would be far less sanguine about their probable success if there is a marked increase in the size of that population and a more general geographic distribution of use. It is much more difficult to conceive of control measures that would be effective and acceptable in a free society if use were to reach the levels found in the United States.

My proposals rest on the assumption that, given adequate reinforcements, the police would be able to find new users and subject them to urine, blood or other testing. If the opiate narcotic-using population were much more widely dispersed, this would become extremely difficult.

THE TREATMENT OF OPIATE NARCOTIC USERS

I am in substantial agreement with the majority opinion on the matter of the treatment of the opiate narcotic user. While I share their view that in general the treatment of the user and the addict is a proper matter of provincial responsibility, I believe there are four roles that the Federal Government should play.

First, the use of opiate narcotics in treatment should be subject to continuing federal regulations. There are obvious advantages of uniformity. But my principal concern is to assure rigorous control over the use of these drugs. While the recent performance of the Federal Government is disappointing in the level of control that has been imposed on the prescribing of

methadone, I believe that there is a greater probability of adequate controls on these drugs being maintained by the Federal Government than by ten separate jurisdictions. The evidence is clear that the improper prescribing of these drugs by only a very few physicians can quickly produce an epidemic. Such was the case in the United Kingdom where fewer than one-half dozen physicians, who were either fools or knaves, contributed significantly to the increased use of heroin and amphetamines. The effects of a lessening of proper controls in any one province could not likely be contained within its borders and could have serious material consequences. For example, much of the recent opiate narcotic problem in Windsor occurred as a result of improper methadone prescribing and dispensing in Detroit. The national border with its checks on movement was not an effective barrier. Provincial borders would present no barrier at all.

Second, the Federal Government should be prepared to establish, at the request of a provincial government, a full range of treatment facilities for opiate narcotic users.

Third, in the absence of adequate provincial treatment facilities for the care of users on parole, such facilities should be provided by the Federal Government. Presumably this is constitutionally possible insofar as they would be, in the context of my recommendations, under a sentence the length of which would place them under the control of the Federal Government.

Fourth, the Federal Government should organize training programs to be made available for provincially employed personnel concerned with the care and treatment of opiate narcotic users.

The Government and the various colleges of physicians and surgeons appear to have failed in adequately policing the prescription of opiate narcotics by physicians. They tend perhaps to be somewhat more effective in curbing malpractice by knaves than by fools or by physicians who are uninformed about the opiate narcotic problem. **I recommend strongly that a greater vigilance be maintained over the prescribing of these drugs and that much more rigorous steps be taken to prevent unwise prescribing.** Canadian, British and American experience amply demonstrates that three or four physicians can, through their prescribing practices, produce an epidemic of opiate narcotic or amphetamine use. There is little reason to feel confidence that existing mechanisms to control and regulate medical practice are adequate.

ADDITIONAL RECOMMENDATIONS CONCERNING THE OPIATE NARCOTICS

THEBAINE

The Bentley Compounds, derivatives of thebaine, an opium alkaloid, have not as yet become significant among the opiate narcotics used non-medically. However, because their potency is as much as 1,000 times that

of morphine or heroin, they could become a serious problem. Consequently, **I recommend that the Government of Canada treat the potent thebaine derivatives as heroin is now treated and urge other governments to follow suit.**

COCAINE

In the course of inquiry we have heard many criticisms of existing law for its want of descriptive accuracy. In particular, the inclusion of cannabis in the *Narcotic Control Act* has been criticized, for clearly this drug is not a narcotic. This Act at present also deals with cocaine, which is no more a narcotic than cannabis. In fact the drug is much closer, in its effects, to the amphetamines than to the opiate narcotics.

At the present time cocaine is not in widespread use in Canada, although much more commonly used and far more readily available than was the case a few years ago. Curiosity about and interest in the drug have very markedly increased, and with them demand. Availability has also increased, and there is no reason to believe that it can be effectively curbed.

Unfortunately cocaine has become a status drug—the drug of the elite among the non-opiate-addicted, serious illicit drug users. Its use will almost certainly increase steadily.

I recommended that it be removed from the control of the *Narcotic Control Act* simply for reasons of accuracy, and that this be done before use has spread further.

In many ways it would be logical and consistent to classify it with the amphetamines. However, it would certainly not be wise to remove the possessional offence. Consequently, **I suggest that cocaine be placed in a separate and distinct classification schedule under the *Food and Drugs Act* with penalties identical to those at present available under the *Narcotic Control Act*.** If the use of this drug begins to reach alarming proportions, then consideration should be given to making use an offence enforceable by body fluid analysis.

Appendices

The Drugs and Their Effects

A.1 INTRODUCTION

OVERVIEW

The primary purpose of this appendix is to provide a critical review of the current scientific knowledge concerning the effects of the major psychotropic drugs used non-medically in Canada. Separate sections are devoted to the following topics: *Opiate narcotics; Amphetamines and amphetamine-like drugs; Cocaine; Hallucinogens; Alcohol; Barbiturates; Minor tranquilizers and non-barbiturate sedative-hypnotics; Volatile substances; and Tobacco*. Each section summarizes the history of the drugs and their medical and non-medical use, the chemical characteristics of illicit samples in Canada, how the drugs are taken and the physiological processes by which they are distributed in the body and finally eliminated, the major physiological, behavioural and psychological effects, including tolerance and dependence-producing potential, and interaction with other drugs. As well, much information bearing on motivation and causal factors and various epidemiological aspects of non-medical drug use is discussed, which can be considered supplementary to the separate appendices of this Report devoted specifically to these topics.

This appendix is the result of re-examination and more comprehensive study of topics discussed in Chapter Two *The Drugs and Their Effects* of the Commission's *Interim Report*. Since the *Interim Report*, we have kept abreast of new scientific developments and have had the opportunity to examine the past literature in greater depth. These data were integrated with the findings of the Commission's own research program. Because the Commission has devoted a separate final report to the topic of *Cannabis*, discussion of marijuana, hashish, THC and related cannabinoids is included here only to the extent to which it is important to the examination of the other drugs and general issues. This review is based primarily on information available to the Commission up to January 1973, although progress in certain areas of principal concern was further monitored and assessed through to March 15, and any major new findings were incorporated. In this appendix, footnotes are indicated in the text by superior letters within brackets and are presented in a

single general list at the back, followed by a separate reference list and selected bibliography for each drug section.

The remainder of this introductory section is primarily based on the Introduction to Chapter Two of the *Interim Report*. In addition to defining some technical terms, certain general concepts are introduced here which may be helpful to the understanding of some of the potentials and limitations of the scientific method as applied to the study of human drug use.

THE DEFINITION OF PSYCHOTROPIC DRUGS

A certain amount of the current controversy and lack of communication regarding the 'drug problem' has been attributed to the multitude of meanings that the term 'drug' has to different people, and to the often arbitrary way in which our society defines, and endeavours to solve, the problems arising from man's persistent use of chemical substances to alter his existence. To some people the word 'drug' means a medicine used in the prevention, diagnosis, or treatment of an abnormal or pathological condition. In other situations, it is often used to refer only to illegal or socially disapproved substances. Some individuals employ the word in a manner suggesting dependence or addiction, regardless of whether it refers to some chemical substance or to other pre-occupations such as television, music, books, or sports and games. Some consider alcohol, tea and coffee as drugs, while to others these are simply normal beverages not to be confused with the more foreign and unfamiliar substances viewed as drugs. Furthermore, the terms 'drug' and 'narcotic' are given special meanings in legal areas. Even scientists frequently disagree as to the precise definition of the term 'drug'.

Modell has suggested a comprehensive pharmacological definition of drugs which the Commission has adopted.²² A *drug* is considered to be *any substance that, by its chemical nature, alters structure or function in the living organism*. Modell observed that:

Drug action is therefore a general biological phenomenon. . . pharmacologic effects are exerted by foods, vitamins, hormones, microbial metabolites, plants, snake venoms, stings, products of decay, air pollutants, pesticides, minerals, synthetic chemicals, virtually all foreign materials (very few are completely inert), and many materials normally in the body.²³

While this interpretation may be too broad for certain practical purposes, it provides some perspective into the ubiquitous nature of our internal and external chemical environment, and the complexity of the question of human drug use. In the context of this report, substances which are typically required for normal functioning (such as food) are excluded from the definition. The Commission's primary concern is focussed on the use and effects of drugs taken for their *psychotropic* or *psychoactive* properties as defined by their capacity to *alter sensation, mood, consciousness or other psychological or*

behavioural functions. As noted earlier, the Commission considers non-medical drug use to be use which is not indicated or justified for generally accepted medical reasons, whether or not under medical supervision.

The use of psychotropic drugs seems to be an almost universal phenomenon and has apparently occurred throughout recorded history, in almost all societies. Some scholars have suggested that this use of drugs may have been among the earliest behavioural characteristics distinguishing man from the other animals. Blum, in the United States *Task Force Report* (1967), has stated:

Mind-altering drug use is common to mankind. Such drugs have been employed for millennia in almost all cultures. In our work we have been able to identify only a few societies in the world today where no mind-altering drugs are used; these are small and isolated cultures. Our own society puts great stress on mind-altering drugs as desirable products which are used in many acceptable ways (under medical supervision, as part of the family home remedies, in self-medication, in social use [alcohol, tea parties, coffee klatches, etc.] and in private use [cigarettes, etc.]) In terms of drug use, the rarest or most abnormal form of behaviour is not to take any mind-altering drugs at all . . . If one is to use the term 'drug user', it applies to nearly all of us.⁴

THE ROLE OF SCIENCE

It has been suggested that the potential role of science in the solution of the 'drug problem' is to provide information to better enable individuals and society to make informed and discriminating decisions regarding the availability and use of particular drugs. Unfortunately, considerable disparity often exists between the need for such information and the capacity of science to acquire and communicate it.

Helen Nowlis has noted:

There are many reasons why the 'facts' invoked in non-scientific discussions of drugs are often not facts at all. They may be second or third-hand quotations of statements attributed to scientists. There is a readiness on the part of many to accept as 'scientific fact' any statement made by, or attributed to, someone labelled as scientist, whether it is a statement based on research, on uncontrolled observation, or merely on personal opinion.^{5a}

While science may be able to serve as a useful guideline and source of information, science itself is not a policy-making process, but merely a practical system designed to explore and test notions of a certain abstract nature. Even though the aim of science is to maximize objectivity, the interpretation and application of scientific data is usually a subjective venture regardless of the controls maintained in the formal analyses. The practical use of such information in the social sphere often entails economic, legal, philosophical and moral issues which are not easily amenable to scientific analysis as we know it today.

Pharmacology is the scientific study of the effects of drugs on the living organism; psychopharmacology is the branch of this discipline specifically concerned with the interaction of drugs with behavioural and psychological activity. Even though considerable progress has been made in advancing our knowledge of biology, science has provided only a minimal understanding of the essential nature of psychological and behavioural functions and their relationship to underlying physiological processes. Consequently, psychopharmacology today must be content with exploring the interaction of chemicals with a largely unknown human psychobiological system of enormous complexity.

THE CLASSIFICATION OF DRUGS

Drug classifications based on a variety of different considerations have been developed and there appears to be little general agreement as to the optimal scheme for ordering the universe of biological active substances. For example, drugs might be organized according to chemical structure, clinical-therapeutic use, potential health hazards, liability to non-medical use, public availability and legality, effects on specific neural or other physiological systems, or influence on certain psychological and behavioural processes. The classification systems developed from these different approaches may show considerable overlap, although there are often striking incongruities. For example, some drugs which appear very similar in chemical structure may be quite different in pharmacological activity and vice-versa. The most useful organization depends on the intended use of the classifications.

Since our major concern here is with the effects of psychologically active substances, our classification system is based primarily on general psychopharmacological considerations. In Table A.1 eight major classes are presented along with some examples of drugs from each group. (Throughout this report the symbol "®" is used to indicate a registered drug trade name.) While the categories are not considered to be exhaustive, the general system is applicable to the majority of drugs used for their psychological effects. Since the effects of drugs depend on a vast number of psychological and physiological components, many of which seem unpredictable, these categories are to some extent based on a typical reaction by an average subject to a common dose. Large variations in any of numerous factors can greatly alter the effects and may reduce the reliability of the descriptions.

I. The *sedative-hypnotics* (e.g., alcohol, barbiturates, 'sleeping pills' and minor tranquilizers) generally decrease central nervous system (CNS) activity, although some psychological stimulation may result at low doses. These drugs are used medically primarily to reduce anxiety and tension, to produce general sedation and, at higher doses, sleep. Barbiturates are often considered the prototype of the sedative drugs.

II. The *stimulants* (e.g., amphetamines or 'speed', 'diet' and 'pep' pills, caffeine, and cocaine) generally suppress appetite, increase activity, alertness,

tension and general CNS arousal, and, at higher doses, block sleep. Amphetamine may be considered the prototype of the stimulant drugs. Nicotine (tobacco) is often categorized as a physiological stimulant although a variety of mixed effects are common, and there is some ambiguity as to the appropriate classification of tobacco.

III. These drugs are often described as *psychedelic* (mind-manifesting), *hallucinogenic*, (hallucination-producing), *psychotomimetic* (psychosis-imitating), *illusinogenic* (illusion-producing), or *psychodysleptic* (mind-disrupting). While these terms refer to somewhat overlapping effects alleged to occur with the drugs in this class, the various labels emphasize different characteristics which are neither synonymous nor necessarily mutually exclusive. Probably none are entirely adequate as descriptive terms. These drugs may produce profound alteration in sensation, mood and consciousness at doses which result in comparatively slight peripheral physiological activity. LSD is often considered the prototype of this drug group. The Commission has classified cannabis with the hallucinogens. The medical value of these drugs is the subject of considerable current controversy.

IV. The drugs in this category have traditionally been referred to as *narcotics* or *opiates*, and include the natural psychotropic alkaloids of the opium poppy, the semi-synthetic derivatives of these substances, and the wholly synthetic compounds with similar pharmacological properties. Examples of these three types are morphine, heroin and methadone. The word 'narcotic' has been used inconsistently in scientific as well as lay language and has been the subject of considerable disagreement in legal matters. (For example, marijuana, cocaine, and other non-opiates are frequently controlled under laws regulating narcotics, in spite of the fact that they are pharmacologically different from this group.) The term 'opiate' is usually more specific, although its application has not always been limited to these drugs. Consequently, the specific term *opiate narcotic* is generally used in this report to reduce ambiguity. These drugs are used medically mainly for their pain-relieving effects.

V. This is an aggregate of chemically diverse substances perhaps best described on a physical basis as *volatile solvents and gases*. They are usually inhaled and include the vapours of such common materials as airplane glue, nail polish remover and gasoline. Some of these drugs have been called *deliriant*s although delirium is only one of many potential effects and is clearly not restricted to these substances. Many are quite similar in effect to the sedative group and might be considered in a sub-class of that category. Some have certain psychedelic or hallucinogenic effects. Most of these substances are not used medically, although several have been employed as surgical anesthetics.

VI. The *non-narcotic analgesics* (e.g., Aspirin® and phenacetin) are primarily used to reduce aching pain and to lower fever. They have little, if

TABLE A.1

CLASSIFICATION OF MAJOR PSYCHOTROPIC DRUGS

I Sedative-Hypnotics*

- Alcohol (ethanol)*
 - beer, wine and liquor
- Barbiturates*
 - amobarbital (Amytal®)
 - pentobarbital (Nembutal®)
 - phenobarbital (Luminal®)
 - secobarbital (Seconal®)
- Minor tranquilizers*
 - chlordiazepoxide (Librium®)
 - diazepam (Valium®)
 - meprobamate (Equanil®)
- Others*
 - anticholinergics (scopolamine§)
 - antihistamines (hydroxyzine [Atarax®])
 - bromides (Nytol®)
 - chloral hydrate (Noctec®)
 - ethchlorvynol (Placidyl®)
 - glutethimide (Doriden®)
 - methaqualone (Mandrax®)
 - methypylon (Nodular®)

II Stimulants*

- Amphetamines*
 - amphetamine (Benzedrine®)
 - dextroamphetamine (Dexedrine®)
 - methamphetamine (Methedrine®)
- Amphetamine-like compounds*
 - cocaine (*Erythroxyton coca*)
 - diethylpropion (Tenuate®)
 - ephedrine (*Ephedra vulgaris*, Ma Huang)
 - methylphenidate (Ritalin®)
 - pipradrol (Meratran®)
 - phenmetrazine (Preludin®)
- Others*
 - caffeine (coffee, tea and cola; Wake-Ups®)
 - khat (*Catha edulis*)
 - strychnine (*nux vomica*)
 - nicotine (tobacco)§

III Psychedelic-Hallucinogens†

- Cannabinoids*
 - cannabis (marijuana, hashish)§
 - THC (tetrahydrocannabinol)
 - Pyrahexyl (Synhexyl), DMHP
- Datura-Belladonna alkaloids*
 - atropine (hyoscyamine)
 - scopolamine (hyoscine)
- Indole tryptophan derivatives*
 - DMT (dimethyltryptamine)
 - harmine (*Banisteriopsis caapi*)
 - LSD (lysergic acid diethylamide-25, lysergide)
 - psilocybin (*Psilocybe* mushrooms)
- Phenethylamines*
 - MDA (methylenedioxyamphetamine)
 - mescaline (peyote cactus)
 - nutmeg (mace, myristicine)

TABLE A.1 (continued)

PMA (4 - [or para-] methoxyamphetamine)
 STP (DOM, dimethoxymethylamphetamine)

Others

Amanita muscaria ('fly agaric' mushroom)
 LBJ (methylpiperidyl benzilate)
 PCP (phencyclidine, Sernyl®)§

IV Opiate Narcotics*

Natural

codeine (methymorphine)
 morphine
 opium (paregoric, Pantopon®)

Semi-synthetic

heroin (diacetylmorphine)
 hydromorphone (Dilaudid®)

Synthetic

methadone (Dolphine®)
 pentazocine (Talwin®)
 pethidine (meperidine, Demerol®)
 propoxyphene (Darvon®)§

V Volatile Substances: Solvents and Gases*

Active compounds

acetone, amyl nitrite, benzene, carbon tetrachloride, chloroform, ether,
 freon, naphtha, nitrous oxide, toluene (toluol), trichloroethylene.

Common sources

fast-drying glue, cement and paint; paint and polish thinner and remover;
 lighter and dry cleaning fluid; gasoline; aerosol cans.

VI Non-Narcotic Analgesics†

Salicylates

acetylsalicylic acid (A.S.A., Aspirin®)
 sodium salicylate

Para-aminophenol derivatives

acetaminophen (Tempra®)
 phenacetin (acetophenetidin)

VII Anti-Depressants‡

Monoamine oxidase (MAO) inhibitors

phenelzine (Nardil®)
 tranylcypromine (Parnate®)

Tricyclics

amitriptyline (Elavil®)
 imipramine (Tofranil®)

VIII Major Tranquilizers‡

Butyrophenones

haloperidol (Haldol®)

Phenothiazines

chlorpromazine (Largactil®)

Rauwolfia alkaloids

reserpine (Serpasil®)

Thioxanthenes

chlorprothixene (Taracton®)

* Used both medically and non-medically.

† Significant non-medical use, but little or no medical use.

‡ Wide medical use, but little or no non-medical use.

§ Classification equivocal.

® Registered drug trade name as an example.

any, direct pleasurable effect and are, consequently, rarely used non-medically for their psychotropic properties.

VII. The *anti-depressants* (e.g., Tofranil® and Elavil®) are used medically to improve mood in severely depressed patients, but are rarely used for non-medical purposes since they have little immediate pleasurable effect on normal mood states. Some of the *stimulants* have been employed medically as anti-depressants, but their effects in this regard are inconsistent.

VIII. The *major tranquilizers* or *neuroleptics* (e.g., chlorpromazine and reserpine) are primarily used to reduce the symptoms of psychosis (as in schizophrenia) and certain other severe psychiatric disorders. While these drugs have initiated a widespread revolution in chemotherapy in psychiatry, they are rarely involved in non-medical use since they lack euphoric properties and generally produce some unpleasant side effects.

THE IDENTITY OF ILLICIT DRUGS

In order for controlled laboratory research to have practical relevance to the social situation of ultimate interest, it is necessary to acquire an adequate picture of the present (and likely future) patterns of use, and accurate information regarding the identity, purity and potency of the drugs being consumed from illicit sources. Furthermore, detailed knowledge of the chemical characteristics of the drugs actually being used is necessary for public health purposes. Although much non-medical drug use involves legally manufactured pharmaceutical compounds, often diverted at some level from legitimate channels, completely clandestine production and distribution of certain drugs is common. Drugs obtained from the illicit market are often incorrectly identified, of inconsistent and unknown quality and strength, may be diluted or contaminated, and occasionally mixed with other drugs. Consequently, it is often difficult to generalize from controlled experimental studies employing known quantities of clinically pure compounds to situations involving the use of illicit drugs. Because of the uncertain identity of some of the drugs used, epidemiological data based on self-reports of illicit drug use may contain errors of considerable proportions. As well, drug identification in medical reports is nearly always based on the verbal report of the user, rather than on chemical analysis of the drugs involved, and erroneous classification of such cases frequently occurs. Samples of the drugs taken are not usually available for chemical analysis, and accurate detection of these drugs in body fluids is often beyond the capacity of the clinical laboratory.

Police drug seizures, although in some respects a biased sample because of the selective nature of law enforcement, are probably more representative of typical 'street drugs' than are the substances brought in to special health or analytic facilities for identification. Unless a specific attempt is made to obtain a random sample of drugs from the 'street', the unsolicited materials brought for analysis (for example, to the laboratories of the Addiction Research Foundation of Ontario or to the Commission) by outside individuals are often submitted because of suspected oddities, and, consequently, as a group,

probably contain a disproportionate number of deviant samples. In one Commission study of illicit drugs, special effort was made to obtain analysis and identification of alleged rare or unusual drugs or combinations. General police seizures are not selected on any pharmacological basis, but data obtained from them provides a basis for direct generalization only to those sectors of the population which are the primary subjects of police attention. The Health Protection Branch of the Department of National Health and Welfare has conducted further analysis of police seizures suspected of adulteration. Data from these studies are presented in the specific drug sections below.^{[b], [c]}

PSYCHOLOGICAL CONSIDERATIONS

The general effect of most drugs is greatly influenced by a variety of psychological and environmental factors. Unique qualities of an individual's personality, his past history of drug experience, his attitudes towards the drug, his expectations of its effects and his motivation for taking it are extremely important and in some instances may completely obscure the typical pharmacological response to a drug. These factors are often referred to collectively as the person's mental 'set'. The 'setting' or total environment in which the drug is taken may also be a factor of major significance.

A few drinks of alcohol may produce drowsiness and fatigue in some situations, while the same individual under different circumstances may feel psychologically stimulated and aroused by the same dose. It appears that the set and setting may be of greater significance with the psychedelic-hallucinogenic substances than with other drugs, and it has been suggested that psychological factors may often be the primary components in determining the quality or character of the psychedelic drug experience.

The so-called *placebo effect* is a striking example of the importance of set and setting in determining the drug response. A placebo, in this context, refers to a pharmacologically inactive substance which elicits a significant reaction, entirely because of what the individual expects or desires to happen. In certain individuals and settings a placebo substance may have surprisingly powerful consequences. The placebo effect is specific to the individual and the setting, and not to any chemical properties of the substance involved. Therefore, in spite of an apparent 'drug effect', the placebo is not considered a drug since it does not alter function "by its chemical nature".

Placebos have been reported in therapeutic situations to significantly relieve such symptoms as headache and a variety of other pains, hay fever, colds, seasickness, neuroses, and a number of gastrointestinal complaints.¹² Some scientists have suggested that the bulk of medical history may actually have been a history of the placebo, since many 'effective cures' of the past have been shown to be without relevant direct pharmacological action, and are today of no value as therapeutic agents.

To control for the influence of such psychological factors in drug research, testing is usually done under at least two conditions: an assessment is made using the actual drug of interest, and a separate measurement is taken after a placebo is given under identical circumstances. By comparing these two conditions some of the effects of set and setting can often be controlled and the actual drug effect uncovered.

PHARMACOLOGICAL CONSIDERATIONS

In studying how drugs affect the body, pharmacologists generally divide the analysis into several processes:

1. *Administration*: how does the drug enter the body?
2. *Absorption*: how does the drug get from the site of administration into the physiological system of the body?
3. *Distribution*: how is the drug distributed to various areas in the body?
4. *Action*: how and where does the drug produce its effects?
5. *Physiological Fate*: how is the drug inactivated, metabolized, and/or eliminated from the body?

Different routes or modes of administration can have considerable influence on the latency, duration, intensity and the general nature of the drug effect. Many drugs are well absorbed from the stomach and intestines after ingestion while others are poorly taken up or may be destroyed by the gastric juices. Certain drugs may be injected, with a hypodermic syringe for example, just under the skin (subcutaneous or S.C.), into the muscle (intramuscular or I.M.), or into a blood vein (intravenous or I.V.). The effects are generally most rapid and intense after intravenous injection and, consequently, this mode of administration can be quite dangerous. In addition, certain volatile substances can be rapidly and efficiently absorbed from the lungs by inhalation.

Often certain consequences or health problems associated with drug use can be traced directly or indirectly to the mode of administration employed by the user. Such factors may operate independently of the pharmacological properties of the drug or may interact in some way with specific drug effects. Examples include respiratory disorders associated with tobacco smoking, nasal damage due to chronic cocaine sniffing, gastrointestinal dysfunction from heavy alcohol drinking, plastic bag suffocation during solvent inhalation, skin abscesses and infections such as tetanus and hepatitis due to unsterile injection, and cardiovascular or pulmonary damage arising from improper intravenous or intra-arterial injection. A drug's potential for producing tolerance and dependence may vary considerably with the mode of administration. For example, ingestion of opium typically entails considerable less risk of physical dependence than intravenous morphine use.

The action of a drug is in many cases terminated by chemical changes which it undergoes in the body. Certain organs (often the liver) metabolize

or 'break down' the original substance into other chemicals which are usually (but not always) less active and more easily eliminated from the body. This process may also be called *biotransformation*. Some drugs may be excreted unchanged in the urine, feces or breath. Action is not always terminated by excretion, however, and the effects of some drugs greatly outlast the actual presence of the chemical in the body. Numerous physiological factors alter absorption, distribution, action and fate, and must therefore be taken into consideration in the study of drug effects.

The details of cellular physiology are largely unknown and with few exceptions there is little information as to the specific mechanisms by which any particular drug changes the activity of the central nervous system. At the simplest level, it appears that a drug alters the functioning of the living cell by entering into some sort of chemical combination with substances already present. It is thought that this interaction typically takes place at a specific *receptor* site in the tissue. Even if this molecular process were well understood, it would not provide a straightforward basis for predicting the overall effects of the drug on a group of interacting cells or, at higher level, on the total nervous system (comprising billions of cells) and associated psychological and behavioural processes.

Age may be an important factor influencing drug distribution, physiological fate and action. Effects which are significant at one stage of maturation may be inconsequential or non-existent at another level of development. As examples, in recent years there has been particular concern over drug effects on the fetus in pregnant women, and the possible psychological effects of heavy drug use on adolescent maturation. Furthermore, certain drugs may have differential effects on old people.

The Importance of Dose

One of the basic principles of pharmacology is that specific statements about drug effects can not be made without consideration of the quantity or dose of the drug involved. With all drugs, the response differs both in the intensity and the character of the reaction, according to the amount of the drug administered. The relation between the dose and the intensity of an effect is often referred to as the *dose-response* or *dose-effect relationship*.

Although the magnitude of the effects of some drugs may increase in a rather uniform (*monotonic*) fashion as dose is increased, other drugs may show a *bi-phasic response* and actually produce behaviourally opposite effects at some doses compared to others. Low doses of alcohol may, in certain instances, be somewhat stimulating, while high doses generally have a strong sedating effect. Scopolamine (a belladonna alkaloid) may produce sedation at low doses, and excitation, delirium and hallucinations with larger quantities. Very toxic doses produce coma and death.

For every drug there is a dose low enough so as to produce no noticeable reaction, and at the opposite extreme, some degree of toxicity or poison-

ing can be produced by any substance if enough is taken. The concept of a *poison*, in fact, really refers to a quantity of a drug which exceeds the body's capacity to cope with it without harm. No drug can be designated either safe, beneficial, or harmful without consideration of the dose likely to be consumed. Chlorine, for example, which is present in most urban drinking water in concentration so low as to have little or no pharmacological effect on humans, is intended to poison harmful bacteria. The same substance, highly concentrated in gaseous form, was developed during World War I as an extremely potent respiratory poison. Even the concept of a psychotropic drug implies some notion of the range of doses likely to be consumed, since almost any drug can, in high quantities, affect psychological function. In many instances, however, considerable physical toxicity or poisoning develops before significant psychological effects occur.

It is usually essential to study a drug's effect over a range of doses in order to obtain an adequate understanding of the nature of the response. It is also important to consider doses which have some relevance to existing or potential patterns of use if social implications are to be inferred from experimental findings.

The Importance of Time

Another important pharmacological concept is the *time-response relationship* or the relation between the time which has elapsed since administration and the effect produced. Such a temporal analysis may be restricted to immediate or short-term (*acute*) effects of a single dose, or on the other extreme, may involve the long-term effects of persistently repeated (*chronic*) use of a drug. Studies of shorter periods of repeated administration are often referred to as *sub-chronic*.

The intensity and often the character or quality of the overall drug effect may change substantially within a short period of time. For example, the main intoxicating effects of a large dose of alcohol generally reach a peak in less than an hour, then gradually taper off. An initially stimulating effect may later change to one of sedation. With some drugs, an initial state of tension or anxiety may later turn into one of relaxation and sense of well-being, or vice-versa, as a function of time. Consequently, it is often essential to obtain measures at several points in time.

It is generally important to consider the long-term consequences of chronic use (especially at higher doses). Usually such effects can not be readily predicted from what is known of the immediate response. For instance, while there is little doubt that the smoking of a few tobacco cigarettes has no lasting detrimental effect on lung or cardiac function, there is increasing scientific evidence that long-term heavy use of this substance has serious consequences. As another example, the clinical picture of the chronic alcoholic involves psychological and physiological disturbances which do not develop with moderate drinking. In simple terms, it is essential to ask: "How

much?", "How often?", and "For how long?", as well as, "By whom?", and "Under what conditions?" when discussing the long-term reaction to repeated drug use.

Main Effects and Side Effects

It is highly unlikely that any drug has only a single action on a particular behavioural or physiological function. Most drugs can produce an almost unlimited number of effects on the body, each with a somewhat unique dose-response and time-response relationship. The relative strength of the different responses to a drug generally varies with the amount taken, and a particular effect which is prominent at one dosage level may be quite secondary at another.

In a therapeutic or clinical setting, one is usually interested in a single or perhaps a small number of the many possible effects. Those which are desired are generally considered *main effects* whilst the other unwanted but concurrent drug responses are labelled *side effects*. This distinction between main and side effects is a relative one and depends on the purpose or the anticipated use of the drug. A response which is considered unnecessary or undesirable in one application may, in fact, be the main or desired effect in another. For example, in the clinical treatment of severe pain, the analgesic (pain-reducing) properties of morphine are considered the main effects, and the psychological euphoria and the intestinal constipation also produced are undesirable side effects. To certain non-medical users, however, the euphoric properties are the main effects, and the analgesic and constipating effects may be irrelevant or undesired. Certain opiate compounds such as paregoric are used in treatment of diarrhea and, in this instance, the constipating effect of the drug is desired and the other responses are considered side effects. It is universal that drugs have undesirable and toxic side effects if the dose is sufficiently increased.

Drug Interaction

Even in cases where the individual effects of different drugs are well known and reliable, if several substances are taken at the same time, the interaction may produce a response which is quite unpredictable on the basis of the knowledge of the individual drugs alone. Sometimes a particular interaction effect may be anticipated. If the drugs normally have similar properties, they may often have an *additive* effect if taken together, resulting in a general increase in response similar to that produced by a proportionately larger single dose of either one. There are also instances in which one drug may *potentiate* the action of another, and the two together produce a greater effect than would be expected by merely adding the individual reactions. Some drugs have *antagonistic* effects, and one may counteract or inhibit certain normal responses to the other.

TOLERANCE, DEPENDENCE AND ADDICTION

Tolerance

Tolerance is said to develop when the response to the same dose of a drug decreases with repeated use. With many tolerance-producing drugs, the intensity of the effects can, to a certain extent, be retained on continued use if the dose is increased. The extent of tolerance, and the rate at which it is acquired, depend on the drug, the individual using it, and the magnitude, frequency and mode of administration. It should be noted that the concepts of *tolerance* and *dose increase* are often mistakenly used interchangeably, when one does not necessarily imply the other. Tolerance may develop to various effects of a drug at different rates and to different degrees. Self-administration of increased doses might be expected if tolerance had developed to those specific aspects of the drug reaction which were reinforcing or rewarding its use. Tolerance or adaptation to some effects of a drug might occur independently from those responses which are sought by the user. Increased usage might also result if tolerance developed to unpleasant side effects. Most, but not all, aspects of tolerance dissipate with abstinence from the drug.

A moderate degree of tolerance to most effects of alcohol and barbiturates develops and a heavy drinker may be able to consume two to three times the alcohol tolerated by a novice. Less tolerance develops to the lethal toxicity of these drugs, however, and a heavy user of sedatives is still very susceptible to death by overdose. Opiate narcotics, such as morphine, are capable of producing profound tolerance, and heavy users have been known to take many times the amount which would normally produce death. By contrast, no noticeable tolerance develops to cocaine (a short-acting stimulant).

The exact mechanisms by which the body adapts, or becomes tolerant, to different drug effects are not completely understood, although several processes have been suggested. Certain drugs (e.g., barbiturates) stimulate the body's production of the metabolic enzymes which inactivate them. In addition, there is evidence that a considerable degree of central nervous system (CNS) tolerance may develop to certain drugs independent of changes in the rate of absorption, metabolism or excretion. An individual tolerant to alcohol, for example, can be relatively unaffected by a large dose even though the resulting high level of alcohol in his blood may accurately reflect the magnitude of his intake. It is uncertain as to whether this represents some general molecular adaptation to the drug at the level of the individual nerve cell, or perhaps a specific response by the central nervous system to counteract the sedating effects and maintain normal function. Learning factors often appear to play an important role in changing the individual's response to a drug after experience with it. Effects which initially may be strange or frightening may later be accepted without reaction or concern, or perhaps, even be desired. There is evidence that people may learn to control some drug

effects, or otherwise come to function normally in the presence of certain responses which might originally have been distracting, or otherwise disrupting of behaviour.

A phenomenon often referred to as "reverse tolerance" or sensitization has been noted with some drugs (notably the psychedelics) in which the desired effects may reportedly be achieved with smaller doses after experience with the drug. Both learning and pharmacological mechanisms have been suggested to underly this process.

In many instances, after an individual becomes tolerant to the effects of one drug, he will also show tolerance to others with similar action. This is called *cross-tolerance*. For example, a heavy drinker will normally show a reduced response to barbiturates, minor tranquilizers and anesthetics, as well as to alcohol.

Physical Dependence

Physical dependence is a physiological state of adaptation to a drug, normally following the development of tolerance, which results in a characteristic set of withdrawal symptoms (often called the 'abstinence syndrome'), when administration of the drug is stopped. These symptoms may be of an intense nature after persistent heavy use, and with some sedatives and opiate narcotics, may include tremors, vomiting, delirium, cramps and, in severe cases with certain sedatives, convulsions and death. There are generally no overt signs of physical dependence if the drug level is kept high enough to avoid the withdrawal syndrome. In a sense, the body comes to depend on the drug for 'normal' functioning after adapting to its presence, and when the drug is absent, considerable disruption of essential physiological processes occurs until readjustment develops. The opiate narcotic withdrawal syndrome may also be elicited without abstinence in dependent users, by the administration of a substance which specifically antagonizes or blocks the effects of the original drug.

Withdrawal symptoms can be prevented or promptly relieved by the administration of a sufficient quantity of the original drug or, often, one with similar pharmacological activity. The latter case, in which different drugs can be used interchangeably in preventing withdrawal symptoms, is called *cross-dependence*. As an example, barbiturates and minor tranquilizers can be used in treating the abstinence syndrome associated with chronic alcoholism.

Often the recovery phase associated with different drugs is characterized by a rebound phenomenon dominated by activity opposite to that produced by the drug. For instance, withdrawal from the sedatives generally results in symptoms of acute and toxic hyperactivation and physiological arousal, while the pattern following intense stimulant (e.g., 'speed') use usually involves sedation, depression and sleep.

Although physical dependence can develop with such common drugs as alcohol and barbiturates, it is not a factor in the drug-taking behaviour of the vast majority of regular users. In those individuals who become physically dependent on these particular drugs, serious social, personal and physiological consequences of drug use usually precede the physical dependence. Therefore, although physical dependence is a serious medical problem in a minority of sedative users, the abstinence syndrome itself is not the cause of major public health problems. The potent opiate narcotics tend to produce pronounced tolerance and physical dependence early in the history of regular frequent use, in part because of the tendency of users to take large doses by injection. These features then soon become an integral part of the particular drug problem typically presented by the chronic use of the opiate narcotics. However, with these and other drugs, psychological factors in the dependence are often more significant in the long run.

Psychological Dependence

Psychological dependence, often called behavioural, psychic or emotional dependence, or habituation, is a much more elusive concept and is difficult to define in a satisfactory manner. A report in the *Bulletin of the World Health Organization* defined psychic dependence as follows: "In this situation there is a feeling of satisfaction and a psychic drive that require periodic or continuous administration of the drug to produce a desired effect or to avoid discomfort."⁸ A major problem with this definition is the difficulty in operationally defining and objectively identifying the characteristics of the dependence in a practical situation. By contrast, some scientists have identified behavioural dependence as repeated self-administration of a drug.²⁷ This approach seems far too broad for most purposes, since it only indicates that the drug is in some way reinforcing or rewarding to the user, and merely restates the observation that he takes the drug. It has also been suggested that psychological dependence might be defined in terms of acute "behavioural withdrawal symptoms" (for example, anxiety, restlessness, or irritability) in a fashion analogous to the classical definition of physical dependence.²⁶ This, of course, has the disadvantage of not allowing identification of the condition until drug use is terminated.

Extreme instances of psychological dependence are easier to identify and may be characterized by an intense craving or compulsion to continue the use of a drug, with obvious behavioural manifestations. In many instances, psychological aspects are considerably more important than physical dependence in maintaining chronic drug use. The major problem with severe amphetamine, opiate narcotic or alcohol dependence, for example, is not the physical aspect, since withdrawal can be successfully achieved in a few weeks, but the great likelihood that the individual will return to chronic use for psychological reasons.

Generally, even regular use of most drugs does not result in such intense psychological dependence. However, more subtle psychological and social factors usually have persistent effects in maintaining the behaviour of drug consumption.

In talking about dependency in any context, whether dealing with drugs or not, it would seem useful to specify what it is that is being depended upon and for what reasons, and to identify the consequences of its presence or its absence. The significance of dependency changes considerably if the entity is relied upon, for example, for the maintenance of life (e.g., insulin for the diabetic) or for the escape from an unpleasant or intolerable situation (e.g., the need for privacy) or perhaps for a feeling of well-being or satisfaction with life. In one sense psychological dependence may be said to exist with respect to anything which is part of one's preferred way of life. In our society, this kind of dependency occurs regularly with respect to such things as television, music, books, religion, sex, money, favourite foods, certain drugs, hobbies, sports or games and, often, other persons. Some degree of psychological dependence is, in this sense, a general and normal psychological condition.

A statement in the brief to the Commission from the Addiction Research Foundation of Ontario reflects the complexity of interpreting the question of dependence:

It should be recognized, however, that dependence is not necessarily bad in itself, either for the individual or for society. The question to be evaluated, therefore, is not whether dependence can occur, but whether dependence in a given case results in physical, psychological or social harm.¹

The Concept of Addiction

The term 'addiction' has had a variety of meanings, and a consensus as to the proper definition seems unlikely, even in scientific circles. Often it has been used interchangeably with dependence (psychological and/or physiological), while at other times it appears to be synonymous with the term 'drug abuse'. The classical model of the addiction-producing drug was based on the opiate narcotics, and has traditionally required the presence of tolerance, and physical and psychological dependence. However, this approach has not been generally useful since only a few commonly used drugs (e.g., alcohol and other sedatives), in addition to the opiates, seem to fit the model satisfactorily. It is clearly inappropriate for many other drugs which can cause serious dependency problems. For example, amphetamines can produce considerable tolerance and strong psychological dependence with relatively limited physical dependence, and cocaine can produce psychological dependence without tolerance or significant physical dependence. Furthermore, in certain medical applications, morphine has been reported to produce tolerance and physical dependence without a significant psychological component. A review of the history of the concept of addiction and its various components was prepared for the Commission by Amit and Corcoran.²

Recognizing the problems with the concept of addiction, Eddy and associates, in the *Bulletin of the World Health Organization* (WHO), proposed the following:

It has become impossible in practice, and is scientifically unsound, to maintain a single definition for all forms of drug addiction and/or habituation. A feature common to these conditions as well as to drug abuse in general is dependence, psychic or physical or both, of the individual on a chemical agent. Therefore, better understanding should be attained by substitution of the term drug dependence of this or that type, according to the agent or class of agents involved. . . . It must be emphasized that drug dependence is a general term that has been selected for its applicability to all types of drug abuse and thus carries no connotation of the degree of risk to public health or need for any or a particular type of drug control.⁶

The WHO committee presented short descriptions of various different types of drug dependence which may occur in some individuals and situations. The list identifies drug dependence of the morphine type, the barbiturate-alcohol type, the cocaine type, the cannabis type, the amphetamine type, the khat type, and the hallucinogen type. However, identifying discrete categories of dependence is often difficult in practice due to the growing prevalence of multiple drug use by drug-dependent persons.

In this report the word *dependent* is typically used rather than the descriptive term 'addict', to refer to an individual who has developed significant dependence on one or more drugs.

SCIENTIFIC METHODS

The Role of Statistics and the Problem of Sampling

Statistical techniques can be helpful in collecting and handling numerical or quantified information, interpreting data, and making inferences or generalizations from it. The simplest use of statistics is to describe or summarize certain abstract characteristics of a group or sample. For example, the average height of players on a basketball team provides a shorthand description of the group. The numerical *mean* is a common index of the average. The *median* is also frequently employed. Considerably more information could be communicated if some idea of the variability of heights within the team were known. The *range* of measures, for example, is a crude index of the variance or 'spread' in the distribution. The *standard deviation* from the mean provides additional descriptive information on variability.

A second function of statistics is to provide a system for inference about some population on the basis of a smaller group or *sample* selected from that population. For example, the patterns of tobacco use in a group of 50 students randomly selected from a school with 500 individuals might provide a reasonable approximation to the smoking behaviour of the entire student population of that school. The success of such generalization or

extrapolation depends on the relative size of the sample and the accuracy or fidelity with which the group studied represents the overall population of interest. Any bias in sampling which reduces the similarity between the selected group and the population to which the results are to be generalized reduces the validity of such extrapolation.

Statistics may also assist in distinguishing between the differences in measurements resulting from random variation and the variance due to the factor which is being studied. By obtaining an estimate of the natural variability in a population, it may be possible to distinguish, with some confidence, between a 'real effect' associated with a particular condition or treatment, and the difference which might be expected by chance alone. The phrase "statistically significant" may be used to indicate a change or difference in some measure which is considered significantly greater than that likely due to chance.

However, statistical techniques, at best, can only indicate the presence or absence of an association between different variables and can not actually identify cause and effect. Such causal inferences must be based on an overall consideration of the research design. In many laboratory experiments, the stimulus and its response may be readily identified, but in less tightly controlled social studies (e.g., surveys) and clinical observations, it is often very difficult or impossible to positively identify the causal variable in a complex pattern of associations among different characteristics of the sample. For example, the demonstration that persons who are heavy users of tranquilizers also tend to be regular alcohol drinkers does not necessarily indicate that one causes the other. It may well be that a third factor (e.g., the desire to avoid or escape anxiety and tension) may be responsible for both behaviours. Interpretation of the data generally requires considerations beyond that involved in the statistical analysis.

It is important to realize that an adequate demonstration of the *absence* of a relationship between two variables is an extremely difficult scientific task. Simply not finding a significant effect or correlation in a study is not necessarily equivalent to demonstrating that no such relationship actually exists, but might be indicative of the methodological limitations of the research instead. The investigators may have asked the wrong questions, employed inappropriate or insensitive measures, failed to adequately control for confounding extraneous factors, used inadequate analytic and statistical techniques, or committed other errors in their research. Many factors must be taken into consideration in interpreting negative findings.

Experimental Methods

Details of research design would not be appropriate here, although some further review of basic experimental techniques in psychopharmacology may be worthwhile. A major methodological goal of scientific research is to eliminate or control for all factors, other than those to be studied, which can influence or bias measurement.

As discussed above, the subjects of the study must be sufficiently similar to the general population of ultimate interest to allow generalization from the data. Extrapolation from one animal species to another, from one human society to another, or from one social group to another is often quite tenuous and must be viewed with extreme caution. Variables such as age, sex, genetic background, education, socio-economic status, nutritional and hygienic conditions, patterns of drug use, and a variety of other ethnic and cultural factors often exert considerable influence on psychological and physiological measures, and must be taken into careful consideration.

Animal studies of drug effects have often focussed on species, doses and measures of questionable applicability to humans. The assumption is often made in toxicology studies that one can accurately estimate the effects of long-term use of moderate amounts of a drug on the basis of sub-chronic administration of massive doses to lower species. The predictive validity of such procedures has not been clearly established and is the subject of much controversy. In many situations, one has little choice but to experiment on animals; such studies have often led to significant advances in human pharmacology, but in most behavioural areas this has been the exception rather than the rule.

It may be important to note that the vast majority of general human and animal pharmacological studies have employed only male subjects. With few exceptions, when general information about the effects of a drug is sought, males are used—females have not commonly been studied scientifically except when some specifically female characteristic was under consideration. To be sure, there are often justifiable biological, social and practical reasons for excluding female subjects in certain studies, but the information gap which exists in some areas is significant. Many studies have employed only prison inmates or psychiatric patients, and generalizations must be limited accordingly.

In order to determine the effect of a particular condition or treatment, it is necessary to have a reference or *control* condition for comparison, which has been treated identically to the *experimental* situation except for the factor under analysis. These data may be obtained from a separate group of control subjects, which is sufficiently similar to the experimental group, or from the same subjects studied at a different time. Due to the great variation between individuals in response to drugs, the latter approach is often most efficient in experimental studies although it is sometimes inappropriate or impractical. Using subjects as their own controls requires special statistical techniques for handling the data, since repeated experience in the situation will affect the subject's subsequent performance through such mechanisms as general adaptation, practice and other learning variables, and often fatigue.

Care must be taken to control or eliminate the possible effects of the subject's and researcher's expectations and biases. Since set and setting play an important role in determining drug effects, an inactive placebo substance

should be tested in a control situation under conditions which are identical to those present when the drug is studied. Sometimes, however, if the subject has had previous experience with the experimental drug, he may soon realize whether he was given the active drug or an inactive substance despite his initial lack of information, and consequently the placebo control may not be complete. An experimental design in which the subject is not informed as to which treatment is being investigated is called a *single-blind* study.

Since the scientist's bias and expectations can also influence the subject's performance and the interpretation of his behaviour (as well as the later data analysis), the validity of the measurements can often be further increased if the researcher is also unaware of which treatment condition is in effect at the time of the experiment. A study in which neither the subject nor the researcher knows which of the experimental treatment variables are operating is called a *double-blind* design. There are certain circumstances where a double-blind is inappropriate or impossible, although it is often the most efficient way to acquire specific information about drug effects in an experimental situation.

Clinical Observations and Adverse Reactions

The term *adverse reaction*, as traditionally applied to the medical use of drugs, refers to significant undesirable or negative side effects of the drug. Drug adverse reactions in traditional medical treatment are not at all unusual. In one study in Montreal, a total of 524 psychiatric patients experienced 730 physiological and/or psychological adverse reactions to therapeutic drugs.¹⁹ This represents an overall incidence of close to 10% of the more than 5,000 patients studied over a one-year period.

In the area of the non-medical use of drugs, defining adverse reactions becomes considerably more complicated. With many drugs, personal and social attitudes and norms often dominate in the interpretation of psychological effects. What may be a desirable or pleasurable effect to one individual in a certain situation may be considered an adverse response in another situation or to another individual. For example, drug effects that are subjectively considered "psychedelic" or "peak" by certain persons are often defined as "psychotic" by others. Feelings of "increased sensitivity to humour" with a drug, may be viewed as "unnatural hilarity" or "loquacious euphoria" by other individuals. A "conscious rejection of the materialistic work ethic" may be seen as an indication of an "amotivational syndrome". What some would consider "exploration of inner consciousness" might alternatively be called "escape from reality". Clearly, the labelling of certain aspects of a drug experience as adverse, neutral or positive is often a function of individual and social constructs and concepts of normality, morality and reality, and generally implies a definite value judgment beyond the objective reporting of behaviour and experience.¹⁰

Even if agreement is reached as to whether a particular drug-associated condition is positive or negative, in practice one is often left with the difficult task of determining whether the behaviour or condition under considera-

tion is in fact a response to the drug, whether the drug use is the result of the condition, whether the two are merely randomly coincident, or if a combination or interaction of these possible situations might exist. For example, some observers contend that only individuals with serious psychiatric disorders become heavily involved in non-medical drug use, while others might argue from the same data that drugs are primarily responsible for the pathology. Alternatively, some investigators have suggested that the psychoses attributed to certain drugs in the literature are actually endogenous schizophrenia occurring in the drug-using population, independent of drug use. Furthermore, it is often very difficult to isolate the alleged effects of any single drug from the possible influence of others, since heavy drug users are almost invariably multi-drug consumers.

Surveys of clinicians and treatment services have generally inquired vaguely about instances of drug use which have come to professional attention, and typically encompass a range of undifferentiated cases covering a variety of social, psychological and physiological conditions. They often include non-medical involvement in cases rising, for example, from parental concern over adolescent usage, rather than from any direct drug effect *per se*. In general, little information can be gained about the 'normal' user of drugs through patient or treatment service sampling, since the subject population is defined *a priori* as pathological. Treatment facilities make contact with relatively few people who are not patients, and their resulting experiences and attitudes are generally biased accordingly.

With few exceptions, hospital records are not kept in a form which enables an efficient search of treatment cases, and ethical considerations regarding the patients' right to privacy often impose further restrictions on easy access to data. Furthermore, the reliability and validity of psychiatric diagnosis, especially in drug-related cases, is often not adequate for survey purposes. Polling individual clinicians and simply counting cases seen medically in a community can be misleading since many such patients are referrals, seen by different doctors, and consequently, may appear several times in the final totals. In addition, many clinicians are not well informed in the area of non-medical drug use, and surveys of such individuals often reflect personal attitudes as much as the epidemiological aspects of the situation.

Since most cases of adverse reaction are probably not brought to medical attention, accurate diagnostic and treatment statistics must be considered underestimates of the overall incidence of the less severe conditions. Most negative effects are handled by the user, his friends or other non-professionals. Fear of legal and social repercussions undoubtedly prevents many from seeking formal assistance. In any event, the number of drug-related clinical cases must ultimately be interpreted in terms of the overall patient population, and more importantly, in terms of the extent and patterns of drug use in the general population from which the patients were drawn.

Psychological problems often emerge in adolescence, which is also the period of greatest drug experimentation. Consequently, a variety of forms

of psychological disorder would be expected to occur by chance in the youthful drug-using population. Some observers estimate that 10–30% of adolescents experience temporary or long-lasting psychological disorders or adjustment problems. Consequently, one would expect to see on a chance basis alone, a significant number of young people who were psychologically disturbed and using various drugs at the same time. In a small number of these individuals, the onset of both acute psychological problems and drug use would be expected to coincide.

The clinician, in treating cases of concomitant drug use and psychological disorder, is left in a very perplexing position. Armed with diagnostic and therapeutic concepts and techniques which are of questionable reliability and validity in even traditional non-drug cases, he must attempt to untangle the undoubtedly intricate and multi-dimensional causal and predisposing factors. It is clear that highly systematic and carefully controlled clinical research is necessary to parcel out causal variables, since most drugs do not typically produce easily identifiable chronic conditions of psychopathology. When such conditions are described, they often appear to be shaped as much by the prior personality of the individual as by the specific pharmacological effects of the drug. It is unlikely that important etiological questions will be answered by anecdotal clinical reports of psychopathology or personality change coincident with drug use in ill-defined sub-groups of patients. However, accurate clinical reports, put into proper population context, can provide valuable clues for subsequent systematic study. (Further discussion of theoretical and methodological issues relevant to the study of drug adverse reactions appears in the various drug sections which follow and, in particular, in Chapter Two of the *Cannabis Report*.)

A.2 OPIATE NARCOTICS

INTRODUCTION

The term *narcotic* has had wide and inconsistent usage in lay, legal and scientific circles. Some use the word to characterize any drug which produces stupor, insensibility or sleep; many apply it only to derivatives of the opium plant ('opiates'); others consider the term equivalent to 'addiction-producing'; and in legal matters, 'narcotics' may refer to almost any allegedly dangerous drugs, (for example, marijuana and cocaine are often included with opiate compounds in narcotics regulations in spite of the dissimilarity of their effects). To reduce some of this ambiguity, the specific phrase *opiate narcotic* is used in this report and is restricted to opium, morphine and related alkaloids obtained from the opium poppy plant (*Papaver somniferum*), and the semi-synthetic derivatives of these alkaloids and wholly synthetic substances with similar pharmacological properties. Opium is prepared from the dried juice of the unripe seed pod (capsule) of the poppy

plant, obtained soon after the flower petals begin to fall; the alkaloids are obtained from opium by various extraction processes.

In 1803, the major active constituent in opium was isolated—an alkaloid given the name morphine after the Greek god of dreams, Morpheus. Raw opium is about ten per cent morphine by weight. In the next half century, various other active alkaloids, such as codeine (methymorphine), were discovered.^{113, 145, 218} Since then, hundreds of semi-synthetic and wholly synthetic morphine-like drugs have been developed. Heroin (diacetylmorphine) and hydromorphone (Dilaudid®) are semi-synthetic compounds derived from morphine. Fully synthetic drugs in this class include methadone (Dolophine® in the U.S.), piminodine (Alvodine®) and pethidine (also called meperidine or Demerol®). These various natural and synthetic compounds have the potential of producing qualitatively similar actions (at different doses), although there is considerable variability among them in the potency of their various effects. With a few exceptions they will be dealt with as a group, with morphine as the prototype.

Heroin is several times more potent on a weight basis than morphine, but is otherwise not significantly different in action from it.^{62, 130, 147, 228} Heroin was originally considered 'non-addictive' when first introduced at the end of the 19th century, and was even suggested as a cure for opium and morphine dependence.^{8, 218} Heroin is usually the choice of the chronic opiate narcotic user in North America today, although members of the medical and related professions who use these drugs non-medically, as well as others who have become dependent as a result of medical use, usually take morphine or the synthetics. Methadone, first used for its analgesic properties, has become important in the management of opiate narcotic dependence, and has recently gained some popularity among illicit users. Although methadone will be mentioned from time to time in this general opiate narcotic discussion, a separate overview of methadone and its long-acting derivatives is presented later in this section. Heroin is often referred to as 'H', 'junk', 'smack', 'scag', 'horse' or 'jazz'. Methadone may be called 'don' or 'dollies'.

Thebaine is an opium alkaloid, present in a number of poppy varieties, which has little morphine-like activity itself. A series of hundreds of semi-synthetic derivatives of thebaine have been developed which are referred to as the Bentley Compounds. Many of these compounds have morphine-like effects, and range in activity up to more than 1,000 times the potency of morphine and heroin. Some are equally effective opiate narcotic antagonists. One highly active drug, M-99 (Etorphine®) and a corresponding antagonist, M-5050 (Diprenorphine®) have received considerable attention and are available for veterinary use in the United States.^{4, 94, 137, 221} As yet, there are no indications of thebaine derivatives entering the illicit market.

Propoxyphene is a synthetic compound, chemically related to methadone, which is primarily used medically to relieve light or moderate pain, typically in combination with acetylsalicylic acid (A.S.A.) as in some Darvon® preparations. Although originally introduced as a "non-narcotic

analgesic", there is growing evidence that propoxyphene is more like the narcotic analgesics than was formerly realized. Its psychological effects are similar to those of codeine in many respects. The appropriate pharmacological classification of propoxyphene is still a matter of some controversy, but it is considered with the opiate narcotics in this report. Similarly, pentazocine (Talwin®) was once heralded as an effective non-narcotic analgesic, but it is now recognized that this drug has significant morphine-like properties and can produce dependence. Dextromethorphan is often referred to as a non-narcotic antitussive and is present in some cough medicines such as Romilar®. The drug lacks significant analgesic properties and has little dependence liability, although it is sometimes used non-medically for its mild euphoric effects.

The earliest unambiguous description of opium to which we have access was written in the third century B.C., although some scholars have cited references to the medical and non-medical use of opium or opiate-like drugs dated more than 5,000 years ago.^{24, 145, 218} Many believe that Homer's 'Nepenthe' was opium. More modern authors, such as De Quincy in 1821, have written extensively of the perils and pleasures of opium.^{53, 157}

Although opium eating has been known in Asia for thousands of years, common use of the drug did not occur until the development of the British East India Company's wholesale opium empire in the 18th century. The practice of smoking opium developed later in China after American tobacco was introduced to the Orient. Chinese attempts at prohibition of the British-Indian opium precipitated the Opium Wars in the 1840s and 1850s, which forced China to open its doors to British (opium) trade.^{24, 48, 145, 189, 216, 218} The majority of the illegal opiates on the North American market today come originally from Southeast Asia in areas of Burma, Thailand and Laos, and from parts of the Middle East. However, India remains the major legal producer of opium. (See Appendix B.2 *Sources and Distribution of Opiate Narcotics*.)

Prior to the 19th century, opium was taken orally in various forms or smoked, and both practices have continued in some areas. There is a decidedly lower dependence liability with these modes of use than with practices which followed, and it was not until the isolation of morphine and the invention of the hypodermic needle that opiate narcotic use became a serious problem in the Western World. Morphine was widely acclaimed among medical practitioners, and injections were used freely to treat pain during the American Civil War, sometimes producing a dependence called, in those days, the 'army disease'. Tincture of opium was employed in many patent medicines and household remedies (such as Laudanum and Paregoric), and the quasi-medical oral use of such opiate preparations was a common practice in North America during the last century. While some degree of dependence is reported to have often developed as a result of this symptomatic treatment, the associated abstinence syndrome was typically mild and often not recognized as a product of drug use. The actual extent

of opiate narcotic use and associated problems at that time is difficult to ascertain, since little systematic reporting was done; however, it would appear that the use of these drugs was not a major moral or legal issue. On the West Coast, the influx of Chinese labourers, some of whom smoked opium, apparently stimulated non-medical use to some degree. In the latter part of the 19th century and early part of the 20th century, restrictions on manufacture and trade of opiate products were instituted in North America. In many cases, non-medical possession was prohibited by criminal law.²⁴
26, 145, 218

The first special notice of opium use in Canada was the indirect result of the anti-Asiatic riots which took place in Vancouver in 1907.⁴⁹ Mr. Mackenzie King, then Deputy Minister of Labour, was sent to British Columbia to process claims from the Chinese community for financial compensation. Two claims appeared from opium merchants for losses sustained in the riots. This prompted Mr. King to inquire into the opium trade as well as the causes of the labour unrest. In his opium report, he noted that the drug was making headway, "not only among white men and boys but also among women and girls", and recommended immediate and strict legal action.

Still little public notice was given to the opiate narcotics in Canada until the 1920s. At that time, Emily Murphy, a Winnipeg police magistrate and judge, wrote a series of articles on "the drug menace" (for *Maclean's Magazine*) which were later expanded and published in a book entitled *The Black Candle*. Opium smokers were described as "ashey faced, half-witted droolers" with no more blood in their bodies "than a shrimp".¹⁶⁶

Historically, the popular conception of the 'narcotics addict dope fiend' has established an image of the non-medical drug user which persists and intrudes into almost every examination or investigation of drug use today. Furthermore, the opiate narcotics have played an important role as a model in much of the past and present drug legislation and in the general criminological approach to the control of socially disapproved drug use. Although many important questions about the opiate narcotics are still unanswered, it is clear that much of what has commonly passed for fact is fiction.

Until recently, many observers did not consider the opiate narcotics to be the cause of a major public health problem in Canada. In the last few years, however, increasing attention has been given to reports of growing use of these drugs by young people both here and in the United States. (See Appendix C *Extent and Patterns of Drug Use*.)

MEDICAL USE

Most of the current medical uses for the opiate narcotics were fairly well understood and established in Europe by the middle of the 16th century and were probably well known in certain areas long before that time. These drugs are primarily used in the relief of suffering from pain, in the treatment

of diarrhea and dysentery, and to reduce cough. They were also once commonly used as tranquilizers and antidepressants.^{113, 145, 218} Hundreds of related compounds have been synthesized in attempts to retain the clinical benefits but reduce the dependence liability of the opiate narcotics. These efforts to develop substitute drugs which do not produce dependence have not been very successful, and morphine and related compounds are still considered by physicians to be among the most valuable drugs available to the practitioner today. Heroin is rarely used medically in Canada, and no new stocks can be produced or imported.

A recent report from a World Health Organization scientific group concluded that the natural and semi-synthetic opiate narcotics are not indispensable in the practice of modern medicine, since wholly synthetic drugs are now available which are in many respects equivalent or superior to the natural compounds.²³⁶ However, none of the synthetic alternates are free from adverse effects, and the report did not suggest that the natural and semi-synthetic opiate narcotics be replaced at this time.

CHEMICAL ANALYSIS OF ILLICIT SAMPLES IN CANADA

Opium is uncommon in Canada, and only 42 samples were identified by police analysts during a 12-month period ending in March 1973.³⁴ Methadone, morphine, codeine and pethidine are occasionally noted in seizure reports. These latter drugs are generally of high purity and are presumed to result from the diversion of legally produced materials.

A study of police seizures of heroin in 1959-60 indicated that the illicit heroin available in Canada was of surprisingly high quality.⁶⁸ Ninety-five per cent of the 229 seizures examined contained between 24 and 68 mg of heroin per capsule, with a mean of 46 mg. The mean purity of these samples was 53%. Lactose (milk sugar) had been used to dilute the heroin in almost all cases. Nine samples (4%) also contained quinine. There were no other indications of deliberate adulteration or any unidentifiable substances.

The Commission has investigated the chemical properties of illicit heroin available in Canada in recent years.^{159, 177} In one study, 90 samples from 20 different police exhibits of heroin (seized between February 1968 and May 1970) were selected from the vaults of the Bureau of Dangerous Drugs and were analysed in the Health Protection Branch laboratories.^{177, [a], [b]} Material packaged in unit doses (capsules or envelopes) ranged in total weight from 9 mg to 143 mg with a median of 77 mg. The actual quantities of pure heroin in these units ranged from 0.6 mg to 94 mg with a median of 25.6 mg. The purity of these samples covered a range of 0.5% to 96% heroin, with a median of 35%. Although a few large seizures showed exceptional uniformity among capsules, considerable variation in heroin content within single bulk seizures was typical. For example, the content of 10 capsules

selected randomly from a total of 60 seized in a single package varied between 21 mg and 62 mg of pure heroin. In another case, the content of five seemingly identical capsules from the same source ranged from 0.6 mg to 30 mg of heroin. In this study, in only one case was another drug (procaine) identified in the heroin samples. No quinine was reported. Non-drug materials (diluent) used to dilute or cut the heroin were not positively identified.

The Health Protection Branch of the Department of National Health and Welfare provided the Commission with data on 168 police seizures of heroin quantitatively analysed during the period of June 1971–October 1972.⁹¹ The results of these analyses are generally similar to those just presented. The actual heroin content per packaged unit dose ranged from 5.4 mg to 92.5 mg with a median of 33 mg, and the purity of bulk powder samples ranged from 1.4% to 100% heroin with a median of 25.6%. Many of these samples were selected for special analysis because of previously detected impurities and consequently cannot be considered representative. The purity of randomly selected samples might be significantly higher. Products of faulty or incomplete synthesis (such as monoacetylmorphine) were often found. A few mixtures of heroin with other non-opiate drugs, such as caffeine, methaqualone and MDA were identified, but such cases did not make up a significant proportion of the total number of police seizures. Quinine was found in only three instances. Non-drug diluents were not positively identified.

In the Commission's collection of illicit drug samples and survey of 'street drug' analysis facilities in Canada (1971–72), 18 samples had been presented as heroin.^{159, [c]} Of these, only nine contained any opiate narcotics. In addition, out of almost a thousand drug analyses reported, opiates were identified in only eleven cases where the substance had been unspecified or alleged to be another drug. No case of 'opiated' hashish or marijuana, alleged to be pure, has ever been chemically documented in Canada in spite of the popular impression that this is an established combination. Samples presented as 'opiated hash' or 'smack grass' have invariably been found to be relatively pure cannabis.

The data now available in Canada do not provide an adequate basis for clear statements regarding regional differences in illicit heroin or changes in the quality of the drug available in the past few years. It is clear that the purity of illicit heroin and the quantity of the drug packaged for consumption in the form of single capsules or bags varies over a considerable range. Adulteration of heroin with other drugs is apparently rare. The substance most often mentioned in reports of diluted or cut heroin is lactose. Quinine, a drug which was a common diluent in the U.S.,^{68, 76, 97} is rarely found in Canadian samples. It would appear that opiate narcotics are very rarely disguised or misrepresented as other drugs in Canada, although some of the materials sold as opiate narcotics on the illicit market may not contain any heroin or morphine.

ADMINISTRATION, ABSORPTION, DISTRIBUTION AND PHYSIOLOGICAL FATE

Opiate narcotics are produced in a variety of tablets and capsules, elixirs, cough syrups, ampules for injection, rectal suppositories and, on the illegal market, some are also available in a gummy, solid or powdered form. Codeine and some of the synthetics are often marketed in mixtures with non-opiate analgesics (e.g., APC&C, '222'®, Darvon®). While opiate narcotics may be readily absorbed from the gastrointestinal tract, in most instances this route is less effective and often erratic and unpredictable compared to injections. Among non-medical users, subcutaneous ('skin popping') and intravenous ('mainlining') injections are commonly used with heroin and morphine, and heroin powder is sometimes sniffed ('snorted'). Raw opium is generally ingested or smoked. Methadone is commonly given orally in medical use, although it is also available in injectable form. Smoking heroin in a cigarette or pipe is very inefficient since the high temperature of combustion (approximately 750°C) causes extensive decomposition of the drug. However, with sufficient quantities of heroin, it is possible for physical dependence to develop from smoking. Less intense (sub-combustion) heating may release a fair amount of active material in fumes (e.g., 50–75%) which is well absorbed by inhalation, and such use of heroin has been reported in the Far East.^{89, 188} Intravenous injection of opiate narcotics produces the most rapid and intense effects. Oral administration generally results in a slower, milder, but longer lasting effect.

Only a minute fraction of the drug absorbed actually enters the central nervous system, its most important site of action. The actual mechanisms by which these drugs exert their effects are largely unknown. There is recent evidence that the primary "opiate receptor" in the central nervous system (CNS) is associated with acetylcholine.¹⁸²

The duration and intensity of the effects are dose-related and vary considerably with the different drugs in this class; the duration of major action of the natural alkaloids may vary from two to six hours or more. The effects of methadone and some of the other synthetics may last many times longer. The opiate narcotics are usually inactivated or modified in the liver and excreted in the urine. Detectable amounts may also be present in saliva and sweat.

Heroin is rapidly metabolized in the body to 6-monoacetylmorphine and morphine, and likely exerts its effects indirectly, primarily as the morphine metabolites.²²⁸ Unchanged heroin apparently has little direct effect. Codeine is chiefly metabolized and excreted in the urine in the form of inactive metabolites, but at least a small fraction is transformed into morphine.¹¹³

DETECTION OF OPIATE NARCOTICS IN BODY FLUID AND TISSUE

A wide variety of standard techniques are available for the detection of opiate narcotics and their metabolites in body tissues and fluids.^{15, 45, 215}

There has been considerable related research activity over the past few years, and significant progress has occurred in several areas.^{125, 162} Much attention has focussed on developing techniques for large-scale urine monitoring programs. Important advances in the detection of opiate narcotics in blood and saliva have also been reported. There is a clear need for convenient techniques for screening for a broad spectrum of drugs in methadone maintenance programs. Several automatic and semi-automatic systems are now commercially available which facilitate the rapid analysis of large numbers of urine samples.¹²⁵

The general analytic methods most commonly used for the detection of opiate narcotics include: thin-layer chromatography (TLC), gas-liquid chromatography (GLC), spectrophotometry, immunoassay, and a variety of simple chemical and colour reaction tests. Some of these methods are useful for general qualitative identification only, while others can provide precise quantitative information as well. The relative value or appropriateness of these various techniques depends on the practical applications intended. Among the factors to be considered in evaluating such methods are: cost, convenience, speed, sensitivity, and specificity. Many of the available methods, if used alone, can be expected to produce a significant number of false positive or false negative indications. The importance of such errors depends, of course, on the application involved. By a combination of methods, under optimal conditions false reports in detecting recent opiate narcotic use can virtually be eliminated.^{9, 56, 209}

Gas-liquid chromatography (GLC) is very sensitive and precise, but is relatively slow and requires a high degree of specialized technical training. In addition, the equipment is expensive and delicate.

At the present time thin-layer chromatography (TLC) apparently provides the most practical general method for detecting a wide variety of drugs in urine.^{125, 126} Many TLC methods are available, all requiring the prior extraction of drugs from biological specimens before analysis. The sensitivity of TLC systems to opiate narcotics depends in part on the volume of the sample tested, and can be enhanced by pre-treatment (hydrolysis) of the material. Methods have been developed which employ preliminary extraction of drugs from the urine onto ion-exchange paper.^{56, 125, 127} This simple step can be easily performed with a minimum of equipment and technical skill. Identification information can be written or typed directly onto the treated paper, which may be sent to a central laboratory for subsequent chemical analysis. Storage or transportation of urine is not necessary with these techniques. Furthermore, unanalysed papers can be conveniently stored for years, if desired, for possible later analysis. Papers can also be collected over a period of time and pooled for a single general analysis, thereby providing considerable savings in time and expense. Kaistha and Jaffe have recently presented a detailed analysis of the costs involved in a large-scale urine screening system employing ion-exchange paper and TLC.¹²⁶

Radioimmunoassay, spin immunoassay and other related antibody and enzyme techniques have recently been developed which allow the rapid detection and quantification of extremely low concentrations of various opiate narcotics in very small quantities of untreated urine, blood, saliva and perhaps sweat.^{1, 86, 136, 197, 210, 211, 225} The spin-label method (also called the free radical assay technique or FRAT) requires only a tiny drop (e.g., 20 microliters) of sample fluid, and can provide analysis within seconds. Such techniques have obvious application in assisting emergency diagnosis of drug overdose cases, for example. The FRAT system has received wide usage by the United States military to determine heroin use in Vietnam.¹¹¹ EMIT (enzyme multiplied immunoassay technique) is comparable to FRAT in most respects but requires less expensive equipment.^{135, 197} Radioimmunoassay can provide greater sensitivity than the other immunoassay techniques, but is slightly slower. With the radio-label method, false positives in the general identification of opiate narcotics are minimal. With immunoassay techniques, the administration of a single dose of heroin or morphine may be detected in body fluids for several days after use.^{86, 212}

Methadone does not interfere significantly with the immunoassay of natural opiate alkaloids, but codeine cannot presently be efficiently distinguished from morphine or heroin using these techniques. It may be possible to specifically identify codeine by a combination of other methods, however. It is generally not practical with available urinalysis methods to determine whether morphine or heroin were used. Immunoassay techniques are much simpler, faster and more sensitive on a sample-volume basis than TLC, but are less versatile. The range of different drugs which can be identified with immunoassay methods is presently limited compared to TLC, although antibody techniques for the detection of many other drugs are anticipated in the near future.

PSYCHOLOGICAL EFFECTS

The subjective psychological effects of opiate narcotics may vary considerably among different individuals and situations. The once popular notion that morphine-like effects are intrinsically so pleasurable that most persons who experience them are promptly addicted has not been scientifically documented. In one experiment, in which injections of morphine were given to 150 healthy male volunteers, only three were willing to allow repeated administration and none indicated that he would have actively sought more.⁴⁰ Other researchers have also reported that the majority of normal pain-free individuals found the effects of opiates quite unpleasant.^{130, 201} In addition, many dependent users report that their initial experiences with opiate narcotics were not very enjoyable. On the other hand, numerous individuals report that they became infatuated with heroin on their first exposure to it and immediately decided to use it in the future as often as possible.

Even after some adaptation or tolerance develops, nausea and even vomiting frequently occur early in the 'high', especially after injections. This does not necessarily indicate dysphoria, however. Regular users report feelings of warmth, euphoria or well-being, peacefulness and contentment as a result of the drug. Drowsiness, dizziness, inability to concentrate, 'mental clouding', apathy and lethargy are also commonly noted. Certain individuals, especially when fatigued, may be stimulated into feelings of energy and strength. Higher doses produce a subjective turning inward and sleep. Often a pleasant dream-like state occurs. Some users describe their drug experiences in near ecstatic, and often sexual terms—especially the 'rush' of intravenous injection. Persons with a high degree of tolerance to opiate narcotics may experience relatively little euphoric response to the drugs; some heroin-dependent individuals claim that the drug merely helps them feel 'normal', rather than 'high'.

The most prominent aspect of opiate narcotics, from a medical point of view, is their considerable analgesic or pain-relieving property. The potential of these drugs to relieve suffering from pain depends upon several mechanisms. The major effect is not on the sensation directly, but on the psychological reaction to it. Often individuals can still perceive the pain sensation and rate its intensity reliably, in spite of the fact that much or all of the negative or unpleasant aspects are absent. In other words, after the drug, a person may still feel the pain, but it does not bother him to the same extent. Morphine has little effect on the other senses and, unlike non-narcotic analgesics and sedatives, it can often control severe pain at doses which do not necessarily produce marked sedation, gross intoxication or major impairment of motor coordination, intellectual functions, emotional control or judgment.¹¹³ In addition to reducing the anxiety of pain and, therefore the motivation to avoid it, the opiate narcotics also tend to decrease other primary motivation associated with sex, food, and aggression.

The psychological effects of chronic opiate narcotic use are often rather straightforward extensions of the short-term response. In regular users, much of the variability and unpredictability of the immediate response is lessened, partly because individuals who find the experience unpleasant tend to avoid additional exposure, and also because many who were initially upset by the drug's unusual physiological and psychological effects learn to tolerate and even seek some of these sensations. The commonly experienced decrease in sex drive with chronic use is often a complicating factor in marital problems. While some individuals who become dependent on the opiate narcotics withdraw from regular social activities and live what appears to be an immoral, criminal and slovenly existence, others are able to lead an otherwise normal life with little change in work habits or ability to meet responsibilities. Possible factors underlying these differences will be discussed later.

Opiate narcotics typically do not disrupt psychomotor performance to any significant degree, although with higher doses there may be some impairment, possibly related to general sedation or motivational factors. ^{13, 73, 85, 208}

Performance is likely to be significantly impaired during the early stage of withdrawal after regular use. It has been reported that persons dependent on heroin have poorer driving records than would be expected in the general population.⁶⁴ However, other evidence indicates that heroin users may drive more extensively, and, if driving exposure is taken into account, they may actually have fewer accidents per unit distance driven.²²

There is no evidence of permanent changes in cognitive or intellectual functioning due to chronic opiate narcotic use. Nor is there any indication of psychosis or other major psychiatric complications caused by these drugs.^{28, 107, 129, 174, 183, 213} In spite of the lack of serious psychiatric complications (other than dependence) caused by opiate narcotics, users of these drugs may be hospitalized in psychiatric institutions from time to time for treatment of their dependence.

In the Commission's national survey of psychiatric hospital diagnostic records in the spring of 1971, opiate narcotics were noted as factors in the primary or secondary diagnosis of 24 (0.1%) of the 22,885 patients in the hospitals surveyed.^{98, [a]} In British Columbia, psychiatric wards in general hospitals were surveyed as well, and in this population opiate narcotics were mentioned in the diagnostic records of 5 (1.7%) of 293 resident patients. According to the mental health data provided to the Commission by Statistics Canada, 139 (0.25%) of the first admissions and 100 (0.20%) of the readmissions to psychiatric institutions or wards in Canada in 1971 were attributed to dependence on natural or synthetic opiate narcotics.^{192, [e]} In these data, males outnumbered females by approximately two to one. (See also Tables A.5, A.6 and A.7 in the Annex to this appendix.)

PHYSIOLOGICAL EFFECTS

Pure opiate narcotics may produce few significant physiological effects in low therapeutic doses, although they affect, to a minor degree, practically all systems of the body. The immediate or short-term physiological response usually includes a general reduction in breathing and cardiovascular activity, a depression of the cough reflex, a constriction of the pupil of the eye and a minor reduction in visual acuity, a small change in some hormone levels, increased biliary pressure, itching of the skin, dilation of superficial blood vessels and warming of the skin, increased perspiration, a decrease in gastrointestinal activity (which typically causes constipation), nausea and sometimes vomiting. Sleep disturbances may occur in some individuals. In higher doses, insensibility and unconsciousness result. The primary toxic overdose symptoms are coma, shock and, ultimately, respiratory arrest and death.

There appears to be little direct permanent physiological damage from chronic use of pure opiate narcotics.^{7, 10, 26, 112, 213} Major complaints centre around persistent constipation and reduced sexual performance during chronic use. Numerous complications are observed, however, if the overall drug use pattern involves adulterated or diluted street samples, unsterile and shared

needles, unhygienic living standards, poor eating habits and inadequate general medical care—all of which are commonly part of the behaviour syndrome of criminalized users. Commonly reported disorders in illicit users are hepatitis, tetanus, numerous cardiovascular and lung abnormalities, scarred veins ('track marks'), local skin infections, ulcers and abscesses, changes in muscle tissue, and obstetrical problems in pregnant females. Serious lung damage, possibly resulting in death, may be caused by intravenous injection of colloidal or partly soluble contaminants—often substances used to dilute or 'cut' illicit heroin, or the chalk or talc commonly found in licitly manufactured drugs (such as methadone) designed for oral use rather than injection. Although users often heat, or "cook" their drugs to increase solubility, and subsequently filter the drug through a wad of cotton to remove major particles prior to injection, this procedure is only partially effective, and may, in fact, introduce other contaminating materials, such as cotton fibres.⁴² There is some evidence of opiate narcotic alteration in gonadal tissue and function, although gross changes in 'sex hormone' levels apparently do not occur. Tuberculosis, pneumonia and venereal disease are more common among dependent users than in the general population.^{42, 143, 191, 198} Since similar problems have been reported in England where pure drugs are available for intravenous self-injection, contamination or adulteration of street drugs must be considered only part of the overall problem.¹⁸

In the 1930s and 40s malaria, transmitted by unsterile needles, was a frequent correlate of opiate narcotic dependence in North America.⁹⁵ For several decades later, no such drug-related malaria deaths were reported.^{8, 97} In the past few years, however, malaria has again appeared on the scene in California. Quinine, which was once commonly used to cut or dilute illicit heroin in the United States (especially on the East Coast), has some therapeutic effects in connection with this parasitic disease and may have been, at least in part, responsible for the decline in malaria cases.^{8, 97} On the other hand, quinine may increase the likelihood of tetanus after subcutaneous injection.⁴¹

ACUTE TOXIC REACTIONS AND DEATH

The mortality rate among persons dependent on opiate narcotics is considerably higher than that of individuals of similar age in the general population. Although considerable variability exists among reports, it has frequently been estimated that in the United States, over 1% of the heroin-dependent population dies each year.^{7, 63, 143, 176, 203} Generally similar estimates can be derived from available Canadian data,^{101, 158} and somewhat higher figures have been reported in England.^{18, 120} In addition to deaths resulting directly from the use of various drugs (representing the majority of the fatalities), a disproportionately high number of heroin users die from violent causes (including murder, suicide and various accidents) and, as discussed above, from numerous infections and diseases. Henderson's¹⁰¹ report

of heroin-related fatalities in British Columbia presents a remarkably similar picture to that described in New York by Helpern and Rho.⁹⁷

There is likely significant underreporting of opiate narcotic- and other drug-related deaths for a variety of reasons.^{6, 97, 205} To begin with, autopsy, with full toxicological analysis, is not conducted in a large proportion of deaths, and other relevant information as to drug use habits of the deceased is frequently unavailable or not actively sought.^{43, 158, 217} Furthermore, there is often considerable reluctance on the part of examining physicians to attribute fatalities to drug use, especially in ambiguous cases. Variations in the numbers of drug death reports from location to location, or from year to year, may represent differences in the examiners' sophistication, and in the interest in and attention paid to possible drug-related cases, as well as differences in extent and patterns of drug use. As effort and sophistication increases, we can expect a corresponding increase in the accuracy (and often the frequency) of drug-related death reports.

The Commission has investigated reports of opiate narcotic-related toxic reactions and fatalities in Canada in considerable detail.^{99, 158} Some of the findings are presented below.

The Federal Poison Control Program has records of over one thousand "narcotics" poisonings or adverse reactions (non-fatal and fatal) for 1971.^{169, [b]} More than three-quarters of these involved pharmaceutical preparations of codeine and acetylsalicylic acid (A.S.A.), such as '222'®. The relative importance of A.S.A. and codeine in these later cases is unclear. (A.S.A. preparations [e.g., Aspirin®] alone account for more poisonings annually than any other drugs.) The A.S.A.-codeine poisoning rate in the population was highest for children under 5 years of age. More than one-third of the cases involved persons 10–25 years of age. There were reports of 179 Darvon® (propoxyphene, typically with A.S.A. and other drugs), 162 heroin, 21 methadone and 19 Demerol® (meperidine or pethidine) toxic reactions. Almost three-quarters of the heroin and methadone cases were males; for all other drug categories, women substantially outnumbered men. A little over one-half of the heroin and methadone cases were 10–24 years of age. Thirty-two deaths were reported which involved natural or synthetic opiate narcotics; 11 of these reports noted Darvon® or propoxyphene, 8 heroin or morphine, 5 methadone, and 4 codeine with A.S.A. and/or other drugs. The persons who died ranged in age from 17–64 years with a median of 28; none of the fatalities involved children.

In the official *Causes of death* reports provided by the Federal Government, opiate narcotic deaths may be coded under a variety of categories.⁹⁸ Since it is not possible to identify specific drugs in the published data, a detailed analysis of the federal death records was conducted for 1969–1971.^{158, 179} As shown in Table A.2, there has been a substantial increase in the opiate narcotic-related deaths reported during the three-year period. The greatest change occurred in propoxyphene-related fatalities; these cases are

TABLE A.2
OPIATE NARCOTIC-RELATED DEATHS IN CANADA (1969-1971)*

	1969			1970			1971			TOTAL 1969-71		
	alone	w/others†	Total	alone	w/others	Total	alone	w/others	Total	alone	w/others	Total
1. Heroin or morphine.....	9	21	30	13	33	46	17	26	43	39	80	119
2. Methadone.....	3	4‡	7‡	6	1§	7§	12	4	16	21	9‡§	30‡§
3. Propoxyphene 	2	—	2	5	6	11	14	20	34	21	26	47
4. Other or Unspecified Narcotic.....	3	5	8	4	3	7	6	6	12	13	14	27
TOTAL CASES:.....	17	28	45	28	42	70	49	56	105	94	126	220

* Based on analysis of detailed data in ICDA (8th) categories: 304.0, 304.1, N 965.0, N 965.9, N 977.9, N 978.0, N 979.0 as provided to the Commission by H. G. Page, Chief, Vital Statistics Section, Statistics Canada, Ottawa, 1973.

† In combination with other drugs.

‡ Includes 2 heroin-methadone combinations also included in row 1.

§ Includes 1 heroin-methadone combination also included in row 1.

|| When Darvon® alone was reported, it was tabulated as a single drug case. In some of these instances, however, the preparation undoubtedly contained A.S.A. and possibly other drugs.

significantly different from the others¹ in that the majority of the propoxyphene deaths were attributed to suicide and most involved women. Most of the other deaths were coded as accidental fatal drug reactions, primarily in men. Quite uniformly from year to year, about two-thirds of the reports included mention of more than one drug. Alcohol, barbiturates and A.S.A. were most frequently noted in combination with opiate narcotics.^[m]

The Commission has been informed by the Supervising Coroner's office of Vancouver that 37 opiate narcotic-associated deaths occurred in that city in 1971 and 65 occurred in 1972.¹⁵⁸ Heroin (or morphine) was involved in 78% and 91% of the fatalities in those years respectively. During the two-year period, there were also 6 methadone-, 2 codeine- and 7 propoxyphene-related deaths. Approximately three-quarters of the fatalities involved other drugs as well, with alcohol and barbiturates most frequently mentioned. Three-quarters of the deceased were males. The Coroner's Office of Ontario provided the Commission with detailed information on nine opiate narcotic-related fatalities occurring in 1972, of which seven cases also involved other drugs. Six reports noted heroin or morphine. These data are not significantly different from those reported for Ontario in 1970 and 1971.¹⁵⁸ In the Commission's survey of coroners' records, of a series of 92 heroin-related deaths (occurring in 1969-1971) approximately three-quarters included mention of other drugs as well.^{99, [s]} In only eight cases was death ascribed to heroin or morphine overdose alone. It would appear that deaths due to heroin alone are quite infrequent in Canada; most of the fatalities involve drug combinations.

The precise mechanism of death in the majority of the acute fatal reactions to opiate narcotics in North America is uncertain. Simple pharmacological overdose of morphine is usually characterized by stupor, coma, shock and, finally with sufficient dose, death due to respiratory failure—a process which typically occurs over several hours.^{113, 190} Such poisoning is easily and rapidly reversed by the administration of a morphine antagonist such as nalorphine, and is rarely fatal if appropriate treatment is administered. If other drugs are also present (as is usually the case) a fatal reaction may be potentiated and effective treatment made much more difficult. (Drug interaction is discussed in more detail below.) Deaths resulting directly from the administration of opiate narcotics, on autopsy, are typically characterized by a profound pulmonary edema (swelling and fluid in the lungs), often producing a bubbly froth in the mouth and nose, with little cardiovascular change.^{43, 61, 77, 97, 143, 205}

Fatalities are frequently attributed to unpredictable variations in the strength of illicit heroin and in changes in the tolerance of users from time to time.^{77, 97, 139, 143, 152} In several reports, death occurred soon after release from hospital or prison when the user's tolerance was low due to abstinence. Regular opiate narcotic users with high tolerance are remarkably resistant to pharmacological overdose effects,^{26, 139} although fatal acute reactions are reported in such individuals. While variations in tolerance and in the strength

of illicit heroin likely play a role in certain fatalities, much evidence indicates that other factors are typically involved.

In most parts of North America simple opiate narcotic overdose death is apparently rare. More frequently reported is a rapid toxic reaction to the intravenous injection of an illicit heroin-containing mixture, which in some instances may result in death within minutes. In some cases, fatal reaction is so sudden that the injection needle may still be in the user's arm or hand when the death is discovered. The role of various potential factors in such unexpected and apparently unpredictable fatalities is uncertain and has recently become the subject of some controversy.^{26, 27, 96} It appears that such cases do not result from simple pharmacological overdose, although they are often recorded as such in official statistics.^{8, 43, 97} In some cases where samples of the material injected were available for analysis—either other 'caps' or 'bags', or drugs remaining in the syringe—no evidence was found of unusual heroin concentration. A sudden fatal reaction may occur to a dose which was apparently comparable to one readily tolerated the day before. As well, users often take drugs from the same batch together in groups, but very rarely does more than a single individual suffer a severe toxic reaction.⁹⁷

Helpern and Rho observed in New York:

The toxicological examination of the tissues in such [sudden shock-like] fatalities, where the reaction was so rapid that the syringe and needle were still in the vein of the victim when the body was found, demonstrated only the presence of alkaloid, not overdosage. . . . Thus, there does not appear to be any qualitative correlation between the acute fulminating lethal effect and the amount of heroin taken⁹⁷

There is some suggestion that an allergic or general hypersensitivity reaction to heroin or some contaminant might be involved in the sudden death phenomenon. Fatal allergic or other idiosyncratic reaction to intravenous injection of various materials may occur on rare occasion even under medical conditions. However, the condition seen with illicit heroin is not the same as that in fatal anaphylactic reaction to penicillin, for example.⁷ If general non-opiate factors were typically responsible for the sudden deaths, one might expect to see a similar fatal syndrome associated with the intravenous use of other illicit drugs such as methamphetamine and barbiturates as well. As discussed in A.3 *Amphetamines and Amphetamine-like Drugs* and A.7 *Barbiturates*, comparable reactions with these other drugs are not reported. Very few fatal acute reactions to amphetamine injection have been documented, and barbiturate fatalities usually occur after prolonged coma. The edema and damage to the lungs typically reported with heroin fatalities may result in part from hypoxia due to impaired respiration;⁶¹ other drugs, such as barbiturates, which also depress breathing may produce a similar but not identical lung condition.⁴³

It has been suggested that quinine, which is frequently found in New York heroin, might play a significant role in fatal drug reactions; overdose of

quinine alone can produce rapid severe pulmonary edema and death.²⁶ As well, it was shown in a rodent study that quinine can add to the lethal toxicity of heroin.¹⁸⁴ However, quinine cannot provide the complete answer since the "narcotic lung" syndrome has also been reported in Canada,⁹⁹ England,^{18, 120} and the Far East,⁷⁵ where quinine is rarely found in heroin. Furthermore, pulmonary edema as a characteristic of opiate poisoning was reported in the North American literature before the appearance of quinine in illicit market heroin. Apparently, the first report of opium-related pulmonary edema was published by Osler in 1880 in the *Montreal General Hospital Reports*.¹⁷⁸

As noted earlier, the general mortality rate among heroin users in England^{18, 77, 120} is reportedly as high or higher than that in North American users, although only limited comparisons of data from different reporting systems can be made. In any event, there is no evidence that the availability in England of pharmaceutical heroin preparations of known strength and purity has been associated with a reduction in the incidence of opiate narcotic-related fatalities among users. The various factors in these deaths have not been fully explored, but it would appear that other drugs are typically involved as well, and that uncomplicated fatal heroin overdose is not common in England.

Rapid fatal reaction to opiate narcotics would be difficult to study experimentally since, even though the phenomenon accounts for a large proportion of heroin deaths in North America, it is actually a rather rare occurrence. For example, Baden has estimated that death due directly to illicit heroin injection occurs only once in 100,000 administrations in New York.⁸

Further study of the significance of other drugs in opiate narcotic-related death is clearly indicated. While it is well known that many drugs may enhance the toxicity of opiate narcotic overdose, the role of drug interaction in the sudden heroin-death syndrome has not been adequately explored. On balance, there would appear to be some opiate-specific factor involved in the bulk of the heroin-related deaths, although the precise pharmacological mechanisms involved, and their possible interactions with other drug and non-drug variables are uncertain.

TOLERANCE AND DEPENDENCE

General tolerance to morphine and related substances develops readily; it develops more rapidly if the interval between doses is less than the duration of action, so that effective concentrations of the drug are continuously present in the tissues, and more rapidly still when large quantities are used. When tolerance has developed there is cross-tolerance to other drugs with similar pharmacological action. Tolerance does not develop with equal rapidity, nor to the same degree for all effects. The disagreeable side effects of nausea, vomiting, and dizziness usually decline early; tolerance to the analgesic and

euphoric action (and the initial 'rush') may develop rapidly; and tolerance to the sedative and respiratory depressant effects usually develops most rapidly of all. In contrast, tolerance to the effect on the pupil and the gastrointestinal tract develops slowly and to a more limited degree, so that the miotic or 'pin-point' pupil and constipation persist. As well, little tolerance seems to develop to the depressant effects on sexual activity. Since a great risk in opiate narcotic overdosage is respiratory depression and failure, tolerance to this effect permits the person, as a rule, to withstand many times the amount of drug which would normally be fatal.^{103, 112, 113, 148, 164, 200}

The tendency to increase dose depends in part on which of these various effects reward or reinforce the use of the drug. Persons who are motivated by the avoidance of chronic pain or other unpleasant psychological conditions, or perhaps simply by the pleasurable, euphoric aspects of these drugs are most likely to increase dose to retain these effects after tolerance develops. Ever-increasing quantities are not inevitable, however, even in regular users, and many persons with morphine-type dependence successfully maintain use at intermediate doses for indefinite periods of time. If use is intermittent, of the 'chipping' or 'spree' variety, minimal tolerance develops and there may be little need or tendency to increase dose. Although other factors may be involved, the primary mechanism of tolerance seems to be a general reduction in the sensitivity of the nervous system to opiate narcotics.^{103, 113}

Tolerance begins to disappear with cessation of use, but its rate of elimination, as with its acquisition, varies with the different effects, and for some it is very slow. Probably the sensitivity of the respiratory centre to the depressant action of morphine is most easily regained, and some deaths have reportedly occurred because persons have attempted to take, after withdrawal, doses to which they had been previously tolerant. Recovery of analgesic and sedative responses are slow, and some metabolic changes persist long into abstinence.^{103, 137, 148, 150}

Opiate narcotics may produce considerable psychological and physical dependence. The relationship between tolerance and physical dependence has been the subject of much discussion, but is not yet resolved satisfactorily. For the most part, however, they seem to develop together in parallel fashion and may reflect common physiological mechanisms. There is some evidence that the mechanism may be set in operation with the very first dose. However, if the amount of drug used is small and it is taken infrequently, no significant signs of dependence normally occur.⁴⁰ The degree of physical dependence, as reflected in the intensity of the withdrawal syndrome, is determined by the quantity, frequency and duration of use, as well as the specific drugs and individuals involved.

The abstinence syndrome which follows withdrawal of any one of the opiate narcotics is a specific, characteristic and self-limiting illness, the onset, peak and duration of which vary with the actual agent involved. With low dose or intermittent use, withdrawal symptoms may be negligible or perhaps resemble the symptoms of flu. This is the pattern most often

seen in Canada today. Withdrawal of the drug after heavy chronic use results in a severe and painful pattern of effects which resembles in certain ways that associated with alcohol and barbiturate withdrawal. There are, however, significant differences between the morphine-like drugs and the alcohol-barbiturate type drugs in this regard.^{112, 200}

The 'classical' severe heroin withdrawal syndrome was described several decades ago as follows:

As the time approaches for what would have been the addict's next administration of the drug, one notices that he glances frequently in the direction of the clock and manifests a certain degree of restlessness. If the administration is omitted, he begins to move about in a rather aimless way, failing to remain in one position long. . . . With this restlessness, yawning soon appears, which becomes more and more violent. At the end of a period of about eight hours, restlessness becomes marked. He will throw himself onto a bed, curl up and wrap the blankets tightly around his shoulders, sometimes burying his head in the pillows. For a few minutes he will toss from side to side, and then suddenly jump out of the bed and start to walk back and forth, head bowed, shoulders stooping. This lasts only a few minutes. He may then lie on the floor close to the radiator, trying to keep warm. Even here he is not contented, and he either resumes his pacing about, or again throws himself onto the bed, wrapping himself under heavy blankets. At the same time he complains bitterly of suffering with cold and then hot flashes, but mostly chills. He breathes like a person who is cold, in short, jerky, powerful respirations. His skin shows the characteristic pilomotor activity well known to those persons as "cold turkey". The similarity of the skin at this stage to that of a plucked turkey is striking. . . . Often at the end of this period the addict may become extremely drowsy and unable to keep his eyes open. If he falls asleep, which is often the case, he falls into a deep slumber well known as the "yen" sleep. . . . The sleep may last for as long as eight or twelve hours. On awakening, he is more restless than ever. . . . Usually as this stage, the addict complains of cramps, locating them most frequently in the abdomen, but often in the back and lower extremities. . . . Vomiting and diarrhea appear. . . . Perspiration is excessive. The underwear and pajamas may become saturated with sweat. Muscular twitchings are commonly present; they may occur anywhere, but are most violent in the lower extremities. . . . If he is handed a cigarette to smoke, his hands tremble so violently that he may have difficulty in placing it in his mouth. . . . It is at this stage that he may one minute beg for a "shot" and the next minute threaten physical violence (to get it). . . .

The readministration of the drug promptly brings about a dramatic change. The patient becomes exceedingly docile almost with the puncture of the hypodermic needle. In a few minutes he begins to feel warm, and the goose flesh and perspiration are no longer visible. . . . In a period ranging from thirty minutes to one hour the tremors disappear. He has become strong and well. He no longer walks with bowed head and stooped shoulders. He stands erect, is quite cheerful, and lights his cigarette like any normal person. He becomes profuse in his apologies for his conduct during the abrupt withdrawal of the drug.¹¹¹

With morphine or heroin, the withdrawal syndrome usually appears 6–12 hours after the last administration, peaks at about 26–72 hours, and

gross recovery usually occurs within about a week, although complete recuperation may take up to six months or longer.^{103, 137, 148, 150} With methadone, the symptoms are qualitatively similar, but at equivalent doses are generally less severe, develop more slowly and are more prolonged. The syndrome seen in chronic users of some of the other analgesics (e.g., codeine and propoxyphene) and in opium smokers is generally milder than with the more potent compounds.

The classical, severe opiate narcotic withdrawal syndrome described above seems to be the exception rather than the rule; much milder, flu-like symptoms are typically described by clinicians and the drug users themselves. This may be due to the relatively low purity of street heroin in some areas, and to the light and intermittent use patterns which have developed, but more likely reflects an overemphasis of extreme cases in the earlier literature.

The chronic use of heroin by pregnant women may result in a variety of obstetrical complications.^{20, 21, 51, 74, 80, 93, 214, 227, 240} Babies born to mothers who are dependent on heroin may also be physically dependent. Some infants may require special medical attention for several weeks following delivery, although others show no obvious withdrawal symptoms or other difficulties. Many of these infants also have low birth weights, but it is not established if this is due to the opiate narcotic or to other factors such as poor nutrition, inadequate hygiene, or the use of other drugs such as tobacco. Babies born to mothers stabilized on methadone during pregnancy also tend to have lower birth weights and to demonstrate withdrawal symptoms, and there is currently some controversy regarding whether it is obstetrically superior for the mother to continue using heroin or to change to medically administered methadone prior to delivery. Supplying the pregnant women with methadone gives the physician a much better understanding of her drug history and also increases the opportunity for prenatal care. On the other hand, the methadone could result in a much stronger physical dependence than had been the case with heroin, and consequently the infant's withdrawal may be more severe. (This latter factor is discussed in more detail below.)

Considerable cross-dependence exists among the opiate narcotics, and an intravenous injection of any of these drugs can, in sufficient dose, substantially reduce or eliminate the withdrawal syndrome in a matter of minutes. Methadone, for example, can prevent withdrawal symptoms and reduce the craving for morphine or heroin in doses which often provide relatively few other psychological effects. In addition, large doses of methadone or other narcotics administered chronically can, by cross-tolerance, block or reduce the euphoriant effects of heroin. These qualities are commonly made use of in the treatment of severe withdrawal and in methadone maintenance programs. Although the sedatives and the opiate narcotics do not show significant cross-tolerance or cross-dependence, barbiturates and minor

tranquilizers may, in some way, mask or ease the discomfort and restlessness of opiate withdrawal.

The direct injection of a specific opiate antagonist (e.g., nalorphine) will block nearly all morphine-like effects and cause the almost immediate appearance of an exaggerated form of the abstinence syndrome in dependent persons. Such drugs have been used to 'test' for dependence in suspected drug users.¹¹³ Antagonists are discussed in more detail in a separate section below.

The relative importance of physical and psychological dependence in the overall picture of chronic opiate narcotic use has been the subject of much controversy. Some investigators argue that the fear of the withdrawal syndrome is often the primary motivating factor behind continued use, while other observers emphasize the strong craving often described even after long periods of abstinence, or the drug's positive reinforcing effects or reward potential. Most dependent persons return to the drug at some time after withdrawal, and some have been known to voluntarily undergo withdrawal in order to lose tolerance and initiate chronic use again, at a lower, more manageable and less expensive level. In addition, there seems to be no relationship between the severity of the abstinence syndrome experienced and the tendency to relapse to chronic use again. These observations suggest that, with most individuals, factors other than mere avoidance of the acute abstinence syndrome are dominant in the overall drug dependence picture. Whether this motivation is related to the desire to escape or avoid a life situation which is unpleasant, emotionally painful, depressing or frustrating, or perhaps a more direct hedonistic desire for pleasure or 'kicks', or a disguised attempt at self-destruction, or still other factors is not clear. No simple answer could be expected to have much generality or validity.

There is growing evidence that a significant conditioning or learning component is involved in physical dependence and the withdrawal syndrome.^{160, 232, 235} Stimuli which are associated with the withdrawal syndrome in dependent subjects can gain the power to produce some signs of withdrawal when presented alone. Furthermore, a stimulus which has been associated with the administration of an opiate narcotic may temporarily reduce the severity of withdrawal symptoms. Drug-dependent persons often report some feelings of relief from withdrawal as they insert a hypodermic needle, even before the drug is injected. Subjective symptoms somewhat like those experienced during acute withdrawal may be elicited by a variety of familiar stimuli in former users, even after considerable periods of abstinence. Talking about heroin, the smell of a burning match previously associated with "cooking up" an injection, or simply seeing physical surroundings and persons who were involved in one's previous drug use may elicit some craving or withdrawal-like discomfort.^{144, 213, 230}

It has frequently been observed that some individuals develop a dependence on the hypodermic needle (or 'point') which becomes, in some respects, independent of the pharmacological properties of the drug. Persons showing such conditioning are often called 'needle freaks'.

Dole and Nyswander contend that the repeated use of opiate narcotics produce a chemically based "narcotic hunger" which may last indefinitely.⁵⁹ In other words, once an individual has become accustomed to the effects of these drugs he is no longer able to function normally in their absence. Anxiety, depression and a craving for the drug may persist and interfere with previously normal behaviour. Some investigators feel that the chronic administration of an opiate narcotic is necessary for these individuals, and that such a condition is, in some respects, analogous to the dependence of a diabetic on insulin. This is one of the rationales often presented for opiate narcotic (e.g., heroin or methadone) maintenance programs.

Numerous studies have been conducted in recent years employing brain lesion, electrophysiological stimulation and recording, and pharmacological techniques in animals, to determine the areas of primary CNS action of opiate narcotics. Experimentally induced changes in opiate narcotic self-administration, tolerance, physical dependence and other effects have been reported; but much of the literature is not consistent, and considerable additional research in this area is needed.^{3, 71, 110, 128, 182, 187, 219, 232}

Although it appears that only a fraction of the persons who have experimented with opiate narcotics actually become dependent, once a serious dependence problem develops, there is little evidence that conventional legal or medical treatment is successful in breaking the recurring relapse cycle. Many observers contend that certain social and personality factors predispose some individuals to drug dependence and that normal individuals rarely, if ever, become chronically dependent. There is considerable evidence that both the ready availability of the drug and a social milieu tolerating or encouraging drug use (either medical or non-medical) are generally more important factors. Although there are numerous individuals who have gradually worked up from occasional 'skin popping' to chronic 'mainline' dependence, there is evidence that some users are able to maintain an intermittent pattern of use.

There have been a number of popular misconceptions about the pattern of development of opiate narcotic dependence. Rumours have frequently been heard that marijuana and hashish have been 'spiked' with heroin to produce opiate addiction in the unsuspecting user. Similar rumours have been heard about 'spiked' LSD. As noted above, however, available evidence in Canada suggests that opiate narcotic adulteration of other drugs alleged to be pure is very rare or non-existent. It would be highly unlikely, if not impossible, for tolerance and dependence to develop in such a situation without the user knowing it. The majority of users, both here and in the United States, were

apparently first 'turned on' by their friends and peers. Blum (in the 1967 United States Task Force Report) points out:

There is no evidence from any study, of initiation as a consequence of aggressive peddling to innocents who are 'hooked' against their will or knowledge. . . . The popular image of the fiendish peddler seducing the innocent child is wholly false.²³

Some of these topics are discussed in more detail in Appendix C *Extent and Patterns of Drug Use* and Appendix D *Motivation and Other Factors Related to Non-Medical Drug Use*.

OPIATE NARCOTICS AND CRIME

A consensus seems to exist among medical, law enforcement and research authorities, as well as drug users themselves, that few if any crimes of violence result directly from the use of the opiate narcotics.^{23, 26, 40, 101, 112, 124, 163, 165, 176, 196, 213} On the other hand, there is a considerable relationship between crime and opiate narcotic dependence in North America, and many persons dependent on illicit drugs have non-drug criminal records. This apparent paradox can be explained by two important factors. To begin with, both in Canada and in the United States, the majority of the individuals studied who became dependent on illicit opiate narcotics had a prior history of behavioural problems and delinquency, and many appear to have continued these practices. The second factor is economic and is associated with the illegality of heroin and its consequent high cost on the illicit market, and the demands made by extended tolerance and dependence.

Because of the illegal nature of the drug, the cost of a heavy heroin habit may run anywhere from \$15.00 to \$50.00 a day and higher, in spite of the fact that the medical cost of the drugs involved would just be a few cents. There are very few legitimate ways in which most individuals can afford to meet illicit market prices. Consequently, when tolerance pushes the cost of drug use above what the user can afford legitimately, he is forced into a decision—either quit the drug and go through withdrawal, or turn to criminal methods of acquiring the necessary money. While some users refuse to become involved in criminal activities and consequently stop using the drug, at least temporarily, many turn to petty crime, small robberies, shoplifting and prostitution. These are the individuals who regularly come to the attention of the law enforcement officials. More affluent persons may be able to support the habit and continue indefinitely without running afoul of the law. Medical profession dependents, for example, apparently have less tendency to commit non-drug offences—perhaps (in addition to predisposing psychological and sociological factors) because they can often steal the drugs with little risk or purchase them at low cost.

As Jaffe has stated:

The popular notions that the morphine addict is *necessarily* a cunning, cringing, malicious and degenerate criminal who is shabbily dressed, physically ill, and devoid of the social amenities could not be farther from the truth. The addict who is able to obtain an adequate supply of drugs through legitimate channels and has adequate funds usually dresses properly, maintains his nutrition, and is able to discharge his social and occupational obligations with reasonable efficiency. He usually remains in good health, suffers little inconvenience, and is, in general, difficult to distinguish from other persons. . . .¹¹²

OPiate NARCOTICS AND OTHER DRUGS

Pharmacological Interaction

Although numerous psychotropic drugs are frequently used both medically and non-medically in combination with opiate narcotics, research into the possible psychological and physiological interaction involved in such combinations has been surprisingly limited. Existing evidence suggests that opiate narcotics taken together with alcohol or barbiturates can result in greater sedation and toxicity (including death) than that produced by either drug alone, but more studies are needed.^{52, 65, 66, 168, 226} The interaction of alcohol and methadone may be of considerable social significance. Other drugs which can produce significant sedation, such as certain non-barbiturate sedatives, minor tranquilizers, antihistamines, and belladonna alkaloids, may add to the depressant effects of opiate narcotics. There are many other questions which require attention; for example, more information is needed regarding the effects that such drug combinations have on psychomotor skills, risk taking, and other functions involved in automobile driving and accidents.

The interactions between opiate narcotics and stimulants such as caffeine, amphetamines and cocaine are also poorly understood and complex. Caffeine and amphetamines are sometimes used medically to counteract the respiratory depressant action of opiate narcotics in cases of overdose.¹⁹³ Combinations of opiate narcotics and amphetamines may be antagonistic on some effects but show no interaction on others, and may have additive effects on certain subjective measures.¹²² It has been reported that amphetamines may enhance the pain-relieving and anti-depressant properties of opiate narcotics when the two are administered together.^{67, 133} Cocaine or amphetamines are sometimes mixed with heroin as a 'speedball' for non-medical use. In some cases, opiate narcotics are illicitly used to reduce the severity of unpleasant symptoms following chronic, high-dose intravenous amphetamine use. Low doses of cocaine administered to mice are reported to reduce the lethality of high doses of heroin, although high doses of cocaine appear to increase the toxicity of heroin in this species. It was also shown in the same study that quinine, which is sometimes used to cut or dilute heroin, particularly in the United

States, adds to the lethal toxicity of heroin.¹⁸⁴ Further investigation of the combined toxicity of these compounds should be conducted in primates.

There has been almost no controlled research on the interaction of cannabis and opiate narcotics. There are reports that cannabinoids may ease the discomfort of heroin withdrawal or craving even though no significant cross-tolerance or cross-dependence apparently exists between these two classes of drugs.^{102, 154, 167, 241} There has been speculation that even though cannabis itself has exceptionally low lethal toxicity, high doses taken concomitantly with opiate narcotics might increase the likelihood of toxic overdose with the latter drugs. Cannabis has been shown to enhance the toxicity of morphine overdose in animals,⁶⁹ but no human data is available.

Progression to Heroin from Cannabis and Other Drugs

In the past two decades, the relationship between cannabis and heroin has been the subject of heated controversy in Western literature. During this period, reports from the United States indicated that the majority of heroin users studied had previously used cannabis, although in certain sections of the country (noticeably the southeastern states) this was not the case.¹¹ Before 1950, there was little evidence or serious discussion of a cannabis-to-heroin progression in North America.

Alcoholism seems to be the most frequent form of serious drug dependence regularly associated with opiate narcotic dependence,^{6, 12, 176, 194, 224} although heavy use of tobacco and barbiturates is also common.^{50, 92, 161} Until recently, there appeared to be no relationship between the use of cannabis and heroin in Canada. Heroin users studied had generally been heavy consumers of alcohol, barbiturates, and tobacco, but had little or no cannabis experience.^{101, 124, 181, 213, 233} The situation has apparently changed and many young Canadian heroin users also report previous and concomitant use of marijuana, amphetamines, barbiturate and non-barbiturate sedatives and, less often, LSD.^{87, 123} Alcohol remains a major problem in North American heroin users, however; the incidence of alcoholism is extremely high in former heroin users, and is a common complicating factor in methadone maintenance programs.⁶

Several U.S. studies of persons arrested for cannabis offences, or noted for other delinquent behaviour, indicate that a significant number of these individuals were later arrested on heroin offences.^{32, 79, 185} In some instances, however, the critical contact with heroin users and sources came from a prison experience.¹¹ Robins reported that one-fifth of a group of blacks in St. Louis who were users of cannabis in the 1940s had admitted to subsequent heroin use.¹⁹⁴

Paton used a Bayesian formula employing various estimates of the incidence of cannabis and heroin use in the general population and in the sub-population of heroin users in England to predict that 7–15% of cannabis users will try heroin.¹⁸⁰ The appropriateness and accuracy of the

figures used in the formula and their applicability to the present situation are highly questionable. The proper use of Bayes' Theorem in this application requires accurate estimates of the incidence of drug use in the various populations described, at a single point in time. Good epidemiological data meeting these criteria were not available in England, and some researchers have suggested that if other, apparently equally justifiable, estimates had been employed, rather than those used by Paton, the resulting prediction of heroin use among cannabis users would have been substantially lower.^{88, 199} In any event, even estimates derived from the proper use of the statistical formula can be considered valid only as long as the social and epidemiological conditions associated with the use of both drugs remain constant. These requirements call into question the general value of Bayes' Theorem in those areas of science dealing with rapidly changing social phenomena.

Studies based on lower-class and/or delinquent populations do not readily generalize to the present phenomenon of middle-class cannabis consumption. It would appear that only a small minority of middle-class cannabis users have had experience with opium, morphine or heroin. However, some opiate narcotic use in certain middle-class groups in Canada has been reported.

Due to loose prescribing practices and the availability of methadone on the illicit market, a number of "primary methadone addicts" (without previous heroin experience) have developed in Canada. Some of these individuals have subsequently tried heroin as well. The extent of such occurrences is uncertain at the present time.

In North American studies, peer groups values and the establishment of contacts with illicit drug distribution networks have played a major role in concomitant and sequential illegal use of different drugs. Becoming accustomed to "breaking the barrier" of illegal drug use by the consumption of one illicit drug may reduce, in some individuals, inhibitions with respect to other such drugs. It has been proposed that cannabis often provides the initial drug in this context. Although previous heavy illicit use of alcohol during adolescence is common in adult chronic drug users, drinking by young people, even though illegal, is largely condoned and, to some extent, encouraged by our society; it does not have the legal significance that cannabis use has. Some have suggested that through the use of cannabis certain, perhaps predisposed, individuals may learn to use a drug as a mode of coping or as a simple primary source of reinforcement and satisfaction, and that this lesson might later generalize to other drugs. In some instances, heroin was first taken by intravenous amphetamine users to 'crash' or come down from a 'speed run'. Much attention has been given to the concept of a "needle barrier" in such cases. It has been suggested that learning to tolerate (or in some cases, to enjoy) the originally aversive practice of self-injection increases the likelihood that other drugs will be injected at a later time. Many argue that persons who ultimately become dependent on opiate narcotics, 'speed' or other 'hard' drugs are strongly predisposed in that di-

rection by personal, social and economic factors, and that the use of transitional drugs is of little causal significance. Attempts to identify and establish personal predisposing factors have met with little success, however, and this interesting hypothesis has yet to be confirmed.

In summary, a positive statistical relationship exists between the use of heroin and a variety of other psychoactive drugs. Marijuana is often the first illicit drug (other than alcohol and tobacco in adolescence) taken by users of heroin and other drugs. The role of cannabis, if any, in the progression to other drugs is not yet well understood; it is unclear whether it plays a specific predisposing role, or is causally unrelated to other drug use and is typically used earlier simply because of its wider availability and social acceptance. Specific pharmacological properties of marijuana (or any other drug) which might lead to a need or craving for other drugs have not been discovered. It would appear that dynamic and changing social and personal factors play the dominant role in the multi-drug-using patterns reported, and that the specific pharmacology of the compounds involved is secondary. Other aspects of this topic are discussed in Appendix C *Extent and Patterns of Drug Use*.

AN OVERVIEW OF METHADONE AND LONG-ACTING METHADONE DERIVATIVES

Introduction

In light of the recent rapid expansion in the medical and non-medical use of methadone in North America, a separate overview focussing on certain pharmacological aspects of methadone and its derivatives is presented here. Some redundancy with the general opiate narcotic discussion above is unavoidable.

Methadone was first synthesized in Germany during World War II.¹⁰⁹ Certain derivatives of methadone, including *l*-alpha acetylmethadol (also called methadyl acetate or LAM) and *dl*-alpha acetylmethadol, have similar but longer-lasting pharmacological effects and are currently being investigated as possible substitutes for it.^{104, 116, 118, 238} Since the effects of these drugs are similar, the following discussion will focus primarily on the more widely used methadone, and the specific derivatives will be referred to when distinctions are appropriate.

Methadone which appears on the illicit market is usually diverted from legal sources, primarily by opiate narcotic-dependent persons who sell a portion of their prescribed medication, or from pharmacy, hospital and other thefts. The illicit manufacture of methadone in clandestine laboratories in the United States has been reported,⁹⁰ but the current magnitude of such supplies has not been established. No illicitly produced methadone has been identified in Canada. Only limited quantities of the longer-acting methadone derivatives are available through licit channels in North America, and little or none appears to have reached the illicit market.

Although the majority of persons dependent on methadone have become regular users through medical treatment of their heroin use, as noted earlier, a number of "primary methadone addicts" have been identified in Canada, who have not used heroin or other opiate narcotics.^{82, 87}

Medical Use

Methadone has clinical properties that are qualitatively similar to morphine and other opiate narcotics. It relieves all types of pain, inhibits coughing, and slows gastrointestinal contractions (thereby relieving diarrhea), and has been used medically for these purposes.¹¹³ More recently, methadone has become important in facilitating opiate narcotic withdrawal and as a substitute for heroin in the long-term medical management of opiate narcotic dependence.^{55, 58, 83, 119} The longer-acting methadone derivatives are currently being investigated as alternatives or supplements to methadone.^{104, 116, 118, 239}

Administration, Absorption, Distribution and Physiological Fate

Methadone is available in solution for injection or in tablets and liquid forms intended for oral use. Taken orally, it retains a considerable degree of effectiveness, including toxicity at high doses. In contrast, morphine and heroin are considerably less effective by the oral route than when injected. Consequently, methadone is commonly given orally in medical use, and may also be taken by mouth by persons who use the drug illicitly but wish to avoid injections.¹¹³ The long-acting methadone derivatives are also effective when taken orally. In fact, the psychological and physiological effects of *l*-alpha acetylmethadol appear more quickly by the oral route than by injection: oral administration results in a 1–1½ hour delay in onset while intravenous or subcutaneous injection results in a delay of 4–6 hours or longer. The racemic mixture, *dl*-alpha acetylmethadol (but not *l*-alpha acetylmethadol) may result in severe burning, aching and pain after subcutaneous injection.⁷²

Metabolism occurs primarily in the liver and excretion is mainly via urine, although under certain conditions significant excretion in perspiration may occur.¹⁰⁰ Methadone is detectable in blood, urine, and other body fluids with standard techniques, and because of its slower metabolism and excretion, it can be detected for considerably longer periods after use than is the case with morphine and heroin. Immunoassay techniques have been developed for methadone.¹³⁵

Effects, Tolerance and Dependence

The acute psychological effects of methadone depend on dose, mode of administration and the individual's past history of opiate narcotic use. When these factors are taken into account, the acute psychological effects of methadone can be very similar to the effects of other opiate narcotics, but are of somewhat longer duration.^{105, 106} For example, the immediate

effects of intravenous injections of this drug may not be clearly discriminable from intravenous injections of morphine or heroin. All three can result in a 'rush', euphoria, drowsiness, nausea, dizziness, relief of or indifference to pain, and so forth. The long-acting methadone derivatives also result in distinct morphine-like effects; *l*-alpha acethylmethadol is different only in that intravenous injection of this drug does not produce an initial 'rush', and its effects have 4-6 hour delay in onset.⁷²

With large and progressively increasing doses of methadone injected regularly over a period of several weeks in an experimental situation, individuals are reported to become less active and may spend a great deal of time in bed in a pleasant dreamy state with alternating periods of somnolence and wakefulness ('on the nod' or 'coasting'); personal appearance may become neglected, and performance on cognitive and psychomotor tests may be slightly impaired.¹⁰⁹ This behaviour is reported to be strikingly similar to that observed when morphine is used under comparable conditions.

The acute physiological effects of methadone are, similarly, not substantially different from those of other opiate narcotics.^{108, 109} For example, there may be slowing of EEG waves, loss of appetite, slight elevation of blood sugar level, sexual impotence, constriction of the pupils, sweating and reduced respiration. The latency, intensity and duration of these effects may vary between the drugs, but for the most part the differences appear to be quantitative, not qualitative.

Although methadone has a high dependence liability of the morphine type, it is now frequently used in the medical management of chronic opiate narcotics dependence.^{58, 83, 119} When a constant dose of methadone is given orally at daily intervals, most of the acute psychological and physiological effects of the drug gradually become minimal or absent as tolerance develops. Tolerance to methadone develops substantially slower than to morphine or heroin, but after tolerance has stabilized, clinical observers reportedly cannot distinguish individuals given such treatment from non-treated normal controls.

Many persons on methadone maintenance are able to perform well in school and at a wide variety of jobs requiring different intellectual and motor skills. Many of these individuals drive automobiles regularly, and some drive trucks and cars in the course of their employment.^{171, 172} So far there is no evidence of significant traffic hazards resulting from these practices. In fact, an improvement in driving records has been reported in some former heroin users after joining methadone maintenance programs.^{22, 64} However, there is relatively little systematic data available dealing with the effects of chronic methadone use on intellectual and cognitive functioning, perceptual and sensory ability, and driving and other psychomotor skills. The existing data do not provide grounds for much concern, but considerable additional research is needed in these areas.^{55, 58, 85, 104, 106} Of particular importance are possible interaction effects with alcohol, cannabis, and other commonly used licit and illicit drugs.

Because of cross-tolerance, when methadone tolerance is sufficiently high, subsequent injections of formerly active doses of heroin or other opiate narcotics are relatively ineffective in producing a 'high' or 'rush'; this effect has been called "narcotic blockade".^{55, 57} In addition, daily administration of methadone is effective in forestalling the onset of the withdrawal syndrome associated with regular use of heroin. Potentially therapeutic aspects of this maintenance of cross-tolerance and cross-dependence include: the reduction of the acute pleasurable, reinforcing effects of opiate narcotics which are of importance in the development and continuation of dependence; the elimination of the need to procure illicit drugs in order to avoid the withdrawal syndrome; the reduction of the sedation and consequent behavioural impairment that may accompany the acute 'high'; the elimination of the 'craving' for heroin often described by heroin users and former users; and the reduction of the secondary complications which usually follow regular intravenous injection of illicit materials.

Other opiate narcotics, including heroin, morphine or pethidine could, in principle, be given orally and in constant doses to produce a similar effect. Methadone, however, has two important properties which make its use more practical. First, it is quite effective when taken orally as compared to injections. Second, it is necessary to administer methadone only once every 24 hours in order to avoid the onset of the withdrawal syndrome. The long-acting derivatives can be administered at intervals of 48 hours or longer with the same result, and for this reason they are being investigated as possible substitutes for methadone. Heroin or morphine must be administered several times daily in order to avoid withdrawal symptoms in dependent users. Since patients may be required to go to a clinic for each drug administration, minimizing the frequency of such visits is of considerable therapeutic and economic significance. There does not appear to be any data from controlled experiments to verify the assumption that the direct effects of methadone maintenance are superior to maintenance on other opiate narcotics, however. Similarly, the relative effectiveness of oral versus intravenous administration of methadone in certain maintenance situations has not been systematically explored and is presently the subject of some controversy.

Although most acute psychological and physiological effects of methadone become minimal or absent with daily administration of constant doses, tolerance to some effects does not appear to develop in many individuals.^{58, 83, 108, 114, 165} Although conflicting opinions exist regarding the degree of euphoria typically produced by methadone under oral maintenance conditions, it is now generally accepted that methadone may reduce anxiety and depression, and may produce a sustained feeling of improved well-being, but not the intense peak euphoria which is characteristic of heroin and morphine. Some symptoms commonly reported to persist include constipation, excessive sweating, impotence and difficulty achieving orgasm, drowsiness and feeling 'loaded'. Patients also report that methadone frequently does not prevent the

appearance of withdrawal symptoms over the entire 24-hour interval between administrations. The long-acting derivatives have not been as extensively studied as methadone, but some similarities in side effects such as sweating, impotence and constipation, and some differences including less sedation and euphoria and fewer abnormal EEG's have been reported in some instances.¹⁰⁴ A cumulative toxicity sometimes occurs with the long-acting derivatives, and it has been reported that subjective amphetamine-like effects, dysphoria, acute psychosis and other toxic reactions may develop after the drugs have been used in high doses for one or two weeks.^{72, 84, 118}

The side effects frequently reported by patients in methadone maintenance programs are related to the magnitude of the dose administered. In one study, it was found that during the first three months of treatment, patients given a high (100 mg) or moderate (50 mg) dose reported more side effects than patients receiving only 30 mg/day.⁸³ The differences were not pronounced, however, and might be expected to decline if tests were continued for a longer period. On the other hand, the 30 mg group showed more evidence of withdrawal effects, occurring primarily in the evening, eight or more hours after receiving the daily dose. Low maintenance doses have also been shown to be more likely to result in transient illicit heroin use; but no dose differences have been found in the number of patients remaining in treatment, their employment, arrest rate, or their use of other drugs.^{83, 118} So far there has been no systematic investigation of the effect that dose and duration of treatment might have on the ease and success of future methadone withdrawal and overall opiate narcotic abstinence. In Canada, methadone doses employed cover a wide range (approximately 25–150 mg), and until careful, long-range studies have been conducted, the optimal range remains unknown.

The number of medical or behavioural complications seen in individuals dependent on illicit opiate narcotics typically decreases following long-term maintenance on methadone. Changes which have been reported include: fewer infections, more regular menstrual function in females, decreased automobile driving violations, fewer physical complaints, less insomnia, an improvement in mood, reduced non-drug criminal behaviour, and increased employment.^{64, 83, 227} Weight gain is often reported by persons on methadone maintenance. Such changes are probably the result of a number of factors, making it difficult to determine possible differences between the effects of the previously used opiate narcotics and associated illicit heroin-dependent life style, and the direct effects of methadone. Like morphine and heroin, there is little evidence of direct permanent physiological damage due to chronic use of methadone.¹¹² Most of the complications seen in non-medical use are attributable to secondary factors such as nutrition, hygiene or the use of other drugs; other effects appear to be reversible upon cessation of methadone use. Considerably more research on the chronic physical effects of long-term use of methadone and its long-acting derivatives is necessary.

Babies born to mothers dependent on methadone frequently demonstrate withdrawal symptoms and may require hospitalization for several weeks.^{20, 21, 227, 240} Low birth weights have also been reported, but it is not known if this and other complications are due to the methadone or to other factors such as inadequate nutrition, poor hygiene and the heavy use of other drugs like tobacco. Babies born to mothers dependent on heroin have similar difficulties, and at present, the possible differences between the drugs in this regard are not well established. No congenital abnormalities have been linked with methadone.

At sufficiently high doses, methadone, like other opiate narcotics, produces coma, shock, respiratory arrest and death. Secondary complications, possibly leading to death, can result from the injection of insoluble materials, such as talc or chalk, which are present in preparations intended for oral use.^{7, 204}

The nature and intensity of the abstinence syndrome which results when regular methadone administration is abruptly discontinued depends, as with other opiate narcotics, on dose and frequency of use.¹⁰⁵ At low doses the abstinence syndrome may be minor or even absent. At high doses the abstinence syndrome is detectable in 1–3 days following cessation of use, after which the intensity and number of withdrawal symptoms build up gradually over a period of about a week and then fall even more gradually, with certain symptoms such as weakness, fatigue, aching and insomnia possibly lasting up to six weeks or longer. With the long-acting methadone derivatives the abstinence syndrome is similar but develops even more slowly, but, so far, observations in man have been continued for only two weeks following cessation of use—in this period the intensity of the withdrawal syndrome did not *begin* to recede.⁷²

Because of its relatively slow metabolism and excretion, the methadone abstinence syndrome is quantitatively and in some ways qualitatively different from that associated with morphine or heroin. As noted earlier, with the latter drugs the acute effects pass more quickly, and the abstinence syndrome appears in half a day or less, reaches its peak intensity after 1–3 days of abstinence, and gross recovery occurs in 7–10 days. The maximum severity of withdrawal is considerably greater with the shorter-acting opiate narcotics than with an equivalent cross-dependent dose of methadone. As a result, methadone may be useful in withdrawing individuals heavily dependent on heroin or morphine. By substituting an equivalent dose of methadone, the subsequent withdrawal syndrome is, at its peak, considerably more bearable and manageable, although distinctly longer in duration.¹⁰⁹ On the other hand, since the heroin withdrawal symptoms most often seen in Canada today are relatively mild, substituting high doses of methadone for heroin may result in a more intense and prolonged withdrawal syndrome than would otherwise have been the case. It has been noted that prolonged withdrawal, even if less severe, may be more aversive to some individuals than a more intense abstinence syndrome of shorter duration.

Some individuals who have had experience in methadone maintenance programs have complained that the withdrawal from methadone can be much worse than that experienced with illicit heroin. This apparent paradox may be partly explained if typical patterns of illicit opiate narcotic use are compared with the regular daily administration of heavy methadone doses. Even regular heroin use in North America is apparently much more of an intermittent practice than was once realized. Very few persons can afford regular daily high-dose heroin use, and many may have developed a relatively mild tolerance and physical dependence prior to beginning methadone maintenance. In fact, an individual can, in many parts of North America, enter methadone maintenance without actually having *any* prior physical dependence. (Note that a single "positive urine" for opiate narcotics is not adequate evidence of regular heroin use or dependence.) However, once established in a maintenance program, the patient is assured a continual daily high tissue level of methadone, designed to produce considerable tolerance and physical dependence. In other words, all individuals on methadone maintenance are solidly dependent on opiate narcotics, often to a much greater and more regular degree than they had been previously when they had to acquire an illicit drug on the street or do without. Consequently, some such individuals are liable to experience a more severe withdrawal from methadone if they quit abruptly. The methadone withdrawal syndrome is milder than that associated with heroin dependence only if equivalent doses which produce comparable tolerance and physical dependence are involved. Unfortunately it is presently difficult to accurately determine the extent of prior opiate narcotic use and dependence in individuals applying for methadone maintenance.

Although methadone is an effective analgesic in acute use, individuals on methadone maintenance experience adequate aversive response to normally painful stimuli. In spite of significant cross-tolerance, pethidine or morphine are apparently effective in relieving pain from serious injury, disease, or medical surgery in methadone-dependent persons. In addition, chronic methadone use does not seem to cause major complications to surgical anesthesia.⁵⁸

OPIATE NARCOTIC ANTAGONISTS

There are a large number of drugs available which block or counteract the effects of opiate narcotics in varying degrees. Most of these compounds have some morphine-like or other activity of their own, while a few are relatively pure antagonists and lack significant direct pharmacological effect. Many of these antagonists have been derived by chemically altering some aspects of natural or synthetic opiate narcotic molecules. Among the best known antagonists are cyclazocine, naloxone, nalorphine (Nalline®), and levallorphan. Cyclazocine was the first narcotic antagonist to become im-

portant in clinical work, and is the best studied and understood of these compounds. Some promising newer antagonists which are under clinical investigation are levo-BC-2605 (synthesized by Bristol Laboratories of Canada), EN 1639A, and M-5050, a thebaine derivative.^{29, 35, 113, 137, 151, 153, 221} Immunization approaches to narcotic antagonism are also being explored employing antibodies originally developed for immunoassay of opiate narcotics in body tissue and fluid.¹⁷

In sufficient dose antagonists can block the psychological and physiological effects of opiate narcotics, including the development of tolerance and physical dependence, and can reverse or prevent toxic effects of opiate narcotic overdose. The antagonists produce their blocking effects without altering the metabolism or excretion of opiate narcotics. It is generally thought that they competitively block the active drug molecule at its receptor site of action. If a short-acting antagonist were used in the treatment of an overdose of a longer-acting drug, such as methadone, repeated administration of the antagonist would be necessary for the duration of time that the methadone would normally have been active. If only a single antagonist dose were given, the patient could relapse into a toxic state after initial recovery, as soon as the antagonist effects began to dissipate.⁷ As noted earlier, antagonists can precipitate an intense acute withdrawal syndrome in opiate narcotic-dependent individuals, and this property is sometimes employed for identifying physically dependent persons for medical and legal purposes.¹¹³

Cyclazocine may be administered orally, subcutaneously or intravenously. Oral administration has been preferred when the drug is to be administered regularly. Naloxone and nalorphine are 30–100 times more effective when injected and are usually given subcutaneously. This feature has led to the development of a methadone-naloxone combination which may be used in the future to discourage the injection of methadone meant for ingestion only: taken orally, as directed, the methadone is effective but the antagonist is not; taken by injection, the methadone is rendered ineffective by the antagonist and, further, an intense withdrawal syndrome is rapidly precipitated in a dependent individual.^{44, 122}

Variations in absorption, distribution, metabolism and excretion are responsible for many of the differences in potency and duration of action among the antagonists. While the duration of action depends to some degree on the particular effect being measured, at sufficient doses cyclazocine, levo-BC-2605 and EN 1639A can be effective for 24 hours; typical doses of naloxone or nalorphine are usually effective for less than 6 hours.^{44, 115, 146, 151, 239} In order to obtain longer-lasting antagonism, certain salts and esters of cyclazocine and naloxone have been synthesized, resulting in an increase in their durations of action by a factor of about 10. In addition, subcutaneous

injections of a lightly granular partly biodegradable plastic permeated with cyclazocine has been shown to suppress the effects of morphine in dogs for more than a week.¹⁵¹ Other vehicles or antagonist carriers include surgically implanted polyethylene film and polylactate matrices.¹⁵³ A relatively pure antagonist which is slowly released from implanted biodegradable material, providing effective opiate narcotic blockade for a month following administration, may be available for testing in humans in the near future.¹⁴⁶

Cyclazocine has been used clinically in regular, daily doses in opiate narcotic-dependent individuals in order to discourage their use of such drugs.^{115, 239} It is thought that ineffective attempts to use opiate narcotics diminish and possibly extinguish the individual's learned opiate narcotic-seeking behaviour and conditioned abstinence symptoms, both of which may result in relapse to opiate narcotic use. This treatment approach may be used more widely when longer-acting antagonists are refined. However, antagonists do not block the craving or hunger for narcotics often reported in persons dependent on morphine-like drugs, nor do they ease the tension or depression frequently noted in such individuals. Consequently, relatively few patients are willing to be maintained on antagonists.

One difficulty with cyclazocine maintenance is that the drug has some direct effects of its own: for example, it has mild analgesic properties, and can produce mental clouding, sensory distortions, hallucinations and a variety of physical symptoms such as constipation, headaches, muscle twitches, and difficulty focussing the eyes. However, tolerance develops to most of these effects with chronic use.^{113, 137} Some degree of physical dependence on cyclazocine or nalorphine can also develop. High doses of levo-BC-2605 result in some side effects, but they are considerably less significant than those produced by cyclazocine or nalorphine at comparable antagonistic doses.^{44, 146} EN 1639A, in contrast, is a more "pure" antagonist, producing few or no discernible side effects at doses providing effective morphine blockade.¹⁴⁹ Naloxone is also a relatively pure antagonist but its short duration of action and high cost limit its usefulness. The Bristol (BC series) antagonists have advantages in that they are synthesized entirely from petroleum products (most other antagonists require some opium material) and are very inexpensive.^{29, 44} Any chronically effective antagonist has the potential disadvantage of preventing the effective legitimate medical use of opiate narcotics as well as non-medical use.

There is no evidence that regular administration of opiate narcotic antagonists results in any permanent psychological or physical effects. Clinical experience with these drugs is limited, however. Human deaths due to overdose of antagonists have not been reported. Fatal levels of cyclazocine have been reached in animals, but it does not appear that lethal toxicity is a significant risk with use of antagonists.

A.3 AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

INTRODUCTION

Amphetamines are synthetic amines which are in some ways similar to the body's own adrenalin (epinephrine). These drugs generally evoke an arousal or activating response not unlike one's normal reaction to emergency or stress. Naturally occurring stimulants, such as khat, ephedrine, strychnine, cathine, caffeine and cocaine, have been used in various cultures for centuries.^{18, 139} Amphetamines were first synthesized in the latter part of the 19th century, although their major pharmacological properties were not discovered until 1928.^{2, 42}

A variety of amphetamine-related drugs currently exist. The most common amphetamine substances are amphetamine (Benzedrine®), dextroamphetamine (Dexedrine®), and methamphetamine (Methedrine® or Desoxyn®), with Benzedrine® being the least potent. Pharmacologically similar ("amphetamine-like") drugs with different chemical structures include benzphetamine (Didrex®), phenmetrazine (Preludin®), phendimetrazine (Dietrol® or Plegine®), methylphenidate (Ritalin®), pipradrol (Mera-tran®), diethylpropion (Tenuate®, also called amfepramone), and chlorphenteramine (Pre-sate®). Although various distinctions can be drawn among these drugs, many of their effects are similar if the dose is adjusted, and, consequently, they will be discussed as a group, with amphetamine as the prototype. Two amphetamine-related drugs, MDA (methylenedioxyamphetamine) and STP (DOM or dimethoxymethylamphetamine), with potent psychedelic-hallucinogenic properties are discussed in A.5 *Hallucinogens*. Cocaine is dealt with separately below. (See A.4 *Cocaine*.) Caffeine is not discussed in detail in this report, but the reader is referred to several recent reviews of the effects of this popular drug.^[b] Common slang terms for the various amphetamines and amphetamine-like drugs include: 'speed', 'crystal', 'meth', 'bennies', 'dexies', 'A', 'uppers', 'go fast', 'pep pills', 'diet pills', 'jolly beans', 'truck drivers', 'co-pilots', 'eye openers', 'wake-ups', 'hearts' and 'footballs'.

Amphetamines were introduced in medicine in the 1930s, and their stimulating properties were widely used by both Allied and Axis soldiers during World War II to counteract fatigue. Since then, amphetamines have been commonly employed in medical practice and often used non-medically by vehicle drivers on long trips, night-shift workers, fatigued housewives, students studying for exams and others who must meet deadlines, athletes attempting to increase performance, and others desiring general stimulation, pleasure or fun.

In the late 1940s much of the war-time drug stockpile became available on the world market, and in many countries amphetamines were available on a non-prescription, over-the-counter basis. Widespread use followed in most industrialized areas with numerous unpleasant consequences. Use reached epidemic proportions, for example, in the 1950s in Japan—a country

which had never previously had a serious drug problem except alcoholics.^{20, 100} Since this time, amphetamines and related drugs have generally been put under governmental control, and in some countries, such as Sweden, they are highly restricted in both medical and non-medical applications. Additional controls on the medical use of amphetamines and some related drugs have recently been imposed in Canada as well.²³

The popularity of medical and non-medical use of these drugs spread rapidly in all age groups and social classes in North America after W.W. II. The drugs were usually taken orally or sniffed, and, more rarely, injected. Oral use was made of 'dismantled' Benzedrine® inhalers, which were on the unrestricted legal market at that time.

Popular oral use of amphetamines has continued, and in the mid-1960s a phenomenon new to North America developed and has caused major concern—the intravenous use of massive doses by persons commonly referred to as 'speeders' or 'speed freaks'. In North America, methamphetamine has been the most popular substance for such use, but in other countries, such as Sweden,¹² phenmetrazine is preferred. Although this practice has been most frequently noted among youthful multi-drug-taking individuals, considerable opposition to such use of amphetamines has developed with the 'hip' community. The 'speed trip' is in many respects the antithesis of the experience sought with psychedelic drugs. Instead of the orientation towards the 'consciousness expansion', personal insight, and aesthetic and religious awareness often attributed to the psychedelic drug experience by hallucinogen users, the 'speed' phenomenon is usually characterized by action, power, arrogance and physical pleasure, and regularly leads to suspicion, paranoia, hostility and, often, aggression and violence. In addition to these undesirable personal characteristics, which often render 'speed freaks' highly unpopular, even amongst their peers, 'speeders' generally present a picture of chronic ill health unparalleled among other youthful users.

The message received by the Commission at public and private hearings, and in written communication with youthful drug users has been mostly negative towards 'speed'. Many experienced illicit drug users consider amphetamines extremely dangerous and undesirable, and have expressed surprisingly hostile attitudes toward these drugs in no uncertain terms. Numerous persons well known to youth, who have had considerable influence on drug attitudes during the past decade (e.g., John Lennon and the Beatles, Frank Zappa and the Mothers of Invention, Timothy Leary, Allen Ginsberg, and Donovan) have made public statements against the use of 'speed'.

Amphetamines are legally available in a variety of tablets, capsules (both in immediate and delayed release forms), elixirs, liquid injections and, until recently, inhalers.¹²¹ Methamphetamine generally appears in powder or 'crystal' form on the illicit market. Amphetamines have been available for medical use in North America in combination with such drugs as barbiturates (e.g., Dexamy®) and other sedatives, atropine, caffeine, vitamins and

minerals, and thyroid extract. One of the most exotic pharmaceutical combinations has been described as follows:

This is a multi-coated tablet of pentobarbital on the outside to induce sleep rapidly, phenobarbital under a delayed dissolving coating to extend the sleep, and under another coating, an amphetamine to awaken the patient in the morning.⁹⁸

As with other prescription drugs which are widely used, such as the barbiturates, minor tranquilizers and related sedatives, the distinction between medical and non-medical use of amphetamines is not always easily made.

MEDICAL USE

As early as 1935, amphetamines (in oral doses from 20–200 mg per day) were found to be a specific treatment for narcolepsy, an uncommon illness which is characterized by sudden attacks of weakness and sleep. These drugs remain the most effective treatment for this disorder.

Since the 1940s amphetamines (generally in doses of 10–50 mg per day) have been used in the treatment of overactive children who showed disorders of attention and impairment of learning capacity. In the last few years, a number of investigators have published results of controlled studies which revealed that amphetamines and methylphenidate were among the most effective treatments for hyperkinetic disorders. There has been a considerable amount of controversy surrounding the use of stimulants in the management of overactive children. Some opponents claim that the drugs are frequently used for social rather than medical reasons to make unruly children conform to the standards of an overly discipline-conscious school system.^{40, 70, 91, 117}

Psychiatrists have occasionally used intravenous injections of methedrine (in doses of 15–30 mg) for diagnostic purposes. Administered in this fashion, the drug induces a state of excitation, elation and increased talkativeness, during which a previously inhibited patient may reveal information and symptoms which might be considered important for the understanding of his disorder. He may also express, more freely, previously suppressed emotions. It has been observed that some patients with a border-line psychosis show typical psychotic symptoms more clearly following an injection of amphetamines.

At one time, these drugs were tried in the treatment of alcoholism and opiate narcotic dependence, but this practice was not successful and was abandoned. Since drug dependence is often a chronic condition, some patients who took this treatment became dependent on amphetamines instead of, or in addition to, their original drug.

Early hopes that amphetamines would prove to be an effective general treatment for severe depression were soon disappointed. Although these drugs are powerful stimulants and increase a depressed person's activity, they may also make him more anxious and agitated, deprive him of sleep,

and may fail to elevate his mood or to reverse the fundamental depressive process. In some well-selected individuals, amphetamines have been effective in relieving mild depression and chronic fatigue. Other drugs which do not have significant stimulant-euphoric properties, such as phenelzine (Nardil®), amitriptyline (Elavil®) and imipramine (Tofranil®) are generally recommended for the chemotherapy of severe depression.

Amphetamines have a strong anorectic or appetite-suppressing effect. Most so-called 'diet pills' contain amphetamines or similar preparations. However, the appetite-suppressing action together with the pleasant stimulating effects of these drugs usually declines after about two weeks of regular use, unless the dose is continuously increased. Weight loss so produced has often been only temporary, and amphetamines are no longer generally recommended for the treatment of obesity. Fenfluramine (an amphetamine analog) suppresses appetite without producing general stimulation effects and has recently been approved for medical use in Canada. (The potential for non-medical use of fenfluramine has not been extensively studied.)

Recent regulations in Canada restrict the regular medical use of amphetamines, phenmetrazine and phendimetrazine (but not other amphetamine-like drugs) to the treatment of narcolepsy, hyperkinesis, mental retardation, epilepsy, parkinsonism, and hypotensive states associated with anesthesia.²³ Amphetamines have also been used, with varying degrees of success, in the treatment of pregnancy nausea, asthma, nasal congestion, nocturnal enuresis (bed wetting), pain and sedative overdose.^{75, 92, 98}

CHEMICAL ANALYSIS OF ILLICIT SAMPLES IN CANADA

Methamphetamine is the most common of the stimulant drugs noted in reports of police seizures and 'street drug' analyses in Canada. Other amphetamines and amphetamine-like drugs are occasionally noted, but relatively few such samples have been identified chemically. When found, these latter drugs are typically of high quality and generally were originally produced by legitimate manufacturers. The methamphetamine available on the illicit market is usually prepared in clandestine laboratories and is apparently often misrepresented or of poor quality, contaminated by products of faulty and incomplete synthesis, and may be mixed with other drugs. As with other drugs, alleged amphetamine samples submitted to Canadian laboratories for analysis are often those suspected of being adulterated, some unknown drug, or the cause of adverse reactions. Consequently, the samples reviewed in the following section cannot be considered a representative selection of illicit Canadian amphetamines.

In the Marshman and Gibbins 1970 study of illicit drugs collected in Ontario, 70 samples were presented to the researchers as methamphetamine. Of these, 61.4% actually contained the drug.⁹⁹ In addition, methamphetamine was detected in five samples which were alleged to be other substances. Amphetamines were found mixed with other drugs in only two instances.

Gibbins found that methamphetamine samples sold as grams (i.e., 'street grams') on the illicit market in Toronto typically contained less than one-tenth the specified quantity of the drug.⁵⁰

The Commission's national survey of 'street drug' analysis facilities covering 1971-72 and our own collection of drug samples provide data on 86 items alleged to be primarily methamphetamine.^{106, [c]} Of these samples:

- 35% were methamphetamine
- 38% contained methamphetamine and other drug(s)
- 20% were some other drug(s)
- 7% contained no drug

Of nine additional samples presented as methamphetamine mixtures, only five contained the drug and none of the combinations were as alleged. Of a total of 111 methamphetamine-containing samples found in the study, 62 (56%) were relatively pure and free of adulteration. The most common mixtures found contained other amphetamines, barbiturates, LSD or PCP, but no one combination occurred more than a few times. In addition, 22 samples containing other amphetamines and 2 of phenmetrazine were found. Approximately one-half of these were mixed with other drugs. Most had been represented as methamphetamine. Methylphenidate was not detected in any samples.

The Health Protection Branch has reported to the Commission the quantitative analysis of 286 samples containing methamphetamine which were seized by the police during the period of June 1971-October 1972.^{63, [b]} Many of these samples had been selected for special analysis because of previously detected impurities and consequently cannot be considered representative of either the forms of the drug on the street or of police seizures in general. These samples were almost exclusively in bulk powder or 'crystal' form (as opposed to capsules or tablets) and ranged from 0.6% to 97.2% pure methamphetamine with a median of 39.2%. Products of faulty or incomplete synthesis were often found, as were other amphetamines. No other impurities or specific mixtures occurred more than a few times each in this collection.

ADMINISTRATION, ABSORPTION, DISTRIBUTION, AND PHYSIOLOGICAL FATE

Amphetamines are usually administered orally and are readily absorbed from the gastrointestinal tract. Occasionally, intramuscular or intravenous injections are used medically. In the past, an amphetamine base inhaler was also available. Amphetamine can be smoked if it is burned with some combustible material such as tobacco. Non-medical users may employ any of these administration routes, including sniffing 'crystal'. Chronic 'speed freaks' generally prefer intravenous injections.

The various amphetamine-related drugs differ to a certain extent in the rate of metabolism and elimination, but the general processes are similar. About half of the amphetamine which enters the body is excreted unchanged in the urine; the remainder is metabolized or chemically altered in the liver prior to elimination. Excretion of the bulk of the dose is rapid, but traces of the drug may be found in the urine up to a week after the last administration.^{14, 75, 92, 98} Because of the considerable proportion excreted unchanged, certain persons have been reported to extract and re-use crystals from the urine when fresh supplies were scarce. (This general practice of 'reclaiming' excreted drugs is not new, and such procedures have been recorded for centuries.)

Amphetamines and metabolites can be readily identified in blood and urine using standard techniques. Most other popular stimulants are also detectable in body tissue and fluids.^{9, 29, 80, 107, 137} Extremely sensitive and rapid immunoassay techniques have recently been developed for the analysis of amphetamines.⁹⁶

MODERATE DOSE EFFECTS^{31, 75, 92, 98}

Both the psychological and physiological responses to amphetamines vary profoundly with dose, and the acute effects of intravenous injection may differ significantly from oral doses. The general effects vary continuously over the full dosage range, but for clarification in the following discussion, the oral use of moderate quantities of amphetamines will be separated from high-dose oral and intravenous use.

At typical therapeutic doses (e.g., 5–30 mg) amphetamines produce electrophysiological (EEG) signs of central nervous system (CNS) activation, along with a variety of adrenalin-like peripheral (sympathomimetic) effects such as increased blood pressure, pulse rate and blood sugar; slight dilation of some blood vessels and constriction of others; widening of the pupils; increased respiration rate; depression of appetite; and some relaxation of smooth muscle. Such effects might last three to four hours.

The psychological response varies among individuals, but might typically include increased wakefulness, alertness, and vigilance, improvement in concentration and a feeling of clearer thinking, decreased fatigue and boredom, elevation of mood, a feeling of sociability, increased initiative and energy, and increased verbal and other behavioural activity. There may be an improvement in some simple mental tasks, in reaction time and muscular coordination, and in athletic performance. In general, improved functioning is most likely to occur when prior performance was at a sub-normal state due to drowsiness, fatigue or boredom.^{39, 147}

On the other hand, a moderate dose of amphetamine in other individuals (or perhaps even in the same individual at different times) might produce irritation, inability to concentrate, restlessness, anxiety, confusion, depersonalization, insomnia, blurred vision, tremor, nausea, headache, dizziness, heart palpitation, drowsiness, chest pains, chilliness, urinary retention, diarrhea or constipation, and other adverse symptoms. With higher doses, hypersensitivity, delirium, panic, aggression, hallucinations, psychosis, and cardiovascular abnormalities may occur in some individuals. There does not appear to be any evidence of irreversible physiological damage associated with long-term use of moderate doses of amphetamines, although temporary disorders do occur. Although deaths are rare, some fatalities have been reported in the literature in unusually sensitive individuals.⁸²

After continued administration of even moderate doses, withdrawal may be associated with fatigue, drowsiness and, not infrequently, emotional depression. The increased energy and alertness elicited by the drug merely postpone the need for rest and clearly provide no long-term substitute for it. Many regular users of stimulants rely on these drugs for energy when fatigued and often do not get proper rest for long periods of time.

It has frequently been said that amphetamines have a "paradoxical effect" on children, especially in cases of hyperkinesis. These drugs reportedly calm hyperactivity and improve school performance in some unruly youngsters, but are considered CNS stimulants in adults. However, the reports are not necessarily contradictory since amphetamines are often noted to enhance concentration and directed attention and to reduce boredom in adults, as well as children, and may not necessarily lead to increased general motor activity in either case. The repetitive, obsessive-compulsive behaviour often seen with high-dose amphetamine use (to be discussed below) may involve pharmacological mechanisms analogous to those producing therapeutic effects on hyperkinetic children at lower doses.

HIGH-DOSE EFFECTS

There has been little direct experimental investigation on the effects of high doses of amphetamines in humans. The chronic, high-dose intravenous amphetamine syndrome has been described by numerous authors.^{27, 44, 90, 124} A similar picture may exist with high-dose oral or nasal use as well.⁸² The cycle or pattern of use usually begins with several days of repeated injections (usually of methamphetamine) gradually increasing in magnitude and frequency. Some users may 'shoot' or 'crank' up to several 'street grams' in a single day.^{55, 90, 131} (As noted earlier, however, the actual doses employed are uncertain, and it is unlikely that they exceed a few hundred milligrams.) Initially, the user may feel energetic, talkative, enthusiastic, happy, confident and powerful, and may initiate and complete highly ambitious tasks. He often becomes involved in behaviour of a repetitive, compulsive nature (called "punding" in Sweden). He does not sleep and usually eats very little. After

the first few days, however, unpleasant toxic symptoms become stronger, especially as the dose is increased. These toxic effects may be similar to those described earlier for lower doses but appear in amplified and exaggerated form. Some symptoms commonly reported at this stage are: compulsive and stereo-typed repetition of meaningless acts, automatic jerking movements, irritability, self-consciousness, suspiciousness, fear, hallucinations and delusions which may take on the characteristics of a severe paranoid psychosis. Aggressive and antisocial behaviour may occur at this time. A number of homicides have been reported to result from such paranoia.⁴³ Hallucinations often include tingling, itching and creeping sensations under the skin thought to be caused by insects or parasites. Intense scratching or digging at these imaginary 'crank bugs' may become so intense as to produce bleeding sores and permanent scars. Severe chest pains, abdominal pain mimicking appendicitis and unconsciousness lasting an hour or more have also been reported after 'over-amping', or injecting too large a dose.^{89, 132}

Towards the end of the 'run' (usually less than a week) the toxic symptoms dominate, the drug is discontinued, fatigue sets in, and prolonged sleep follows, sometimes lasting several days. Upon awakening, the user is usually lethargic, ravenously hungry and often emotionally depressed. The user may overcome these effects with another injection—thus initiating the cycle anew. In other instances, 'runs' may be separated by days or weeks. On certain occasions, 'down' drugs, such as barbiturates or minor tranquilizers, and more recently, opiate narcotics may be used to 'crash' or terminate a run which has become intolerable or otherwise unpleasant.

'Speed freaks' are generally unpopular within the multi-drug-using community and are often shunned. Consequently, these individuals may live together in 'flash houses' totally occupied by amphetamine users. Frequent 'hassles', aggression and violence have been reported in such dwellings. Heavy users are generally unable to hold a steady job because of the drug use patterns and often develop a parasitic relationship with the rest of the illicit drug-using community. There are reports that many chronic users support themselves through petty crime.^{13, 115} There is significant evidence that much of the violence and criminal behaviour associated with 'speed' use may reflect social and pre-existing psychological conditions as much as the pharmacological effects of the drug.¹³³

The immediate effect of the intravenous injection of amphetamines is a sudden, overwhelming pleasurable 'rush' or 'flash' which has been described by users in such terms as "an instant total body orgasm". This effect is reportedly quite different from the warm, drifting sensation associated with opiate narcotics injection, but may be initially similar to the 'splash' produced by intravenous cocaine.^{27, 90, 131} Some users claim that the immediate fantastic pleasure of the injection is their prime motivation for using 'speed', and that other aspects are secondary. There are also reports of 'needle freaks', for whom the use of the hypodermic syringe has acquired special rewarding connotations beyond the actual pharmacological effects of the drugs. On the

other hand, since high-dose oral or sniffing use has been commonly reported in the literature for years, the injection 'rush' is clearly not a necessary component for all chronic users.⁸² In addition, it has been reported that some kind of initial (but delayed) 'rush' may be produced by large doses taken orally.

Some individuals report that sexual activity is prolonged by amphetamines, and may continue for hours. When orgasm finally comes it may be more pleasurable than normal; however, some users describe an inability to reach a climax. While only a minority of users report increased sexual activity, some people give this reason as a primary one for taking the drug.^{13, 36, 90, 124} Other users claim that they take the drug simply for euphoria or 'kicks', or because it enables them to be more confident and active.

The clinical picture of the chronic 'speed freak' is a distressing one indeed. Continued use of massive doses of amphetamines often leads to dehydration and considerable weight loss, sores and non-healing ulcers, brittle fingernails, tooth grinding, chronic chest infections, liver and cardiovascular diseases, a variety of hypertensive disorders, gastrointestinal dysfunction, psychiatric problems and, in rare cases, cerebral hemorrhage.^{30, 52, 89, 90, 130, 148} The extent to which these effects are the direct result of the drug or the secondary consequences of poor eating habits and malnutrition, unhygienic living conditions, over-exertion and improper rest is unclear, but evidence of direct damage due to high-dose use is accumulating.^{52, 83, 86, 122, 148} Necrotizing angitis, a progressive inflammatory disorder of the small arteries, has been reported in a group of intravenous amphetamine users, with fatal outcome in some. This disease may be linked to the drug and is often fatal if untreated.²⁸ Further complications may be caused by unsterile and shared needles and injections, including tetanus, abscesses and ulcers of the skin, hepatitis, perhaps malaria, and a variety of other infections. Many problems associated with the injection of insoluble or colloidal particles often present in street 'speed' have been reported. Similar problems occur when tablets, legitimately produced for oral use only, are crushed, mixed with water and injected.^{8, 128} Although users may strain the drug solution through a wad of cotton or a cigarette filter as they draw it into the needle for injection, such measures are generally inadequate for this purpose and may, in fact, add impurities.

Although some users feel certain that their mental abilities have been impaired by heavy use, no clear picture of irreversible brain damage as a regular effect in human users has appeared in the literature. Several investigators have suggested that recovery from the major effects of chronic 'speed' use is slow but rather complete, requiring perhaps 6–12 months of abstinence and favourable living conditions.^{3, 89, 90} However, a recent study with monkeys, employing high doses within the range consumed by some chronic human users, revealed evidence of significant cardiovascular change and permanent neurological damage after only a few weeks of daily drug administration.¹²² This is clearly a high priority area for further research.

The acute psychosis reportedly produced by heavy amphetamine use has received much attention recently. Many investigators contend that the condition is often indistinguishable from paranoid schizophrenia.^{32, 45} Prolonged lack of sleep, as occurs during a 'speed' run, by itself, has been shown to produce psychotic-like conditions.¹¹⁴ This led to the hypothesis that the entire amphetamine psychosis syndrome might be caused by general sleep deprivation or REM (rapid eye movement phase) sleep blockade. Although severe psychosis apparently occurs most often after heavy chronic use in previously unstable and perhaps pre-psychotic individuals,^{10, 44, 45, 66, 69} symptoms of psychosis have been produced under controlled experimental conditions after less than two days of repeated administration in non-psychotic subjects.^{6, 57, 58, 59} Prolonged sleep deprivation, then, is not a necessary component of an amphetamine psychosis,⁴⁶ although it probably plays a significant role in most instances. Phenothiazines seem to alleviate most of the signs of psychosis, and major symptoms generally clear up with proper rest after amphetamines are withdrawn. In some cases, however, residual symptoms may last for months after cessation of amphetamine use.⁴⁵

The undoubtedly intricate causal relationships between prolonged psychiatric disturbances and chronic amphetamine use are not clear. While it is well established that high doses of amphetamines can reliably elicit or augment symptoms of psychiatric disorder as an acute effect, many investigators have stressed that a considerable degree of prior psychopathology often exists among regular 'speed' users—especially those who appear for psychiatric treatment.^{10, 36, 44, 45, 66, 69, 82, 97} Links between the acute symptoms of amphetamine toxicity and long-lasting psychiatric conditions in chronic users must be further explored. It is often not apparent whether existing psychopathology has predisposed certain persons to heavy amphetamine use or if the drug itself has produced the prolonged behavioural disturbances frequently observed in chronic users. Considerable interaction among these variables is to be expected. As well, we have little epidemiological information as to the proportion of even heavy users who actually develop severe psychotic or other pathological conditions. Most studies of the psychological characteristics of amphetamine users have obtained subjects as a result of their contact with treatment or law enforcement facilities and, consequently, have limited generality.

Various local surveys of physicians reported to the Commission as well as our own studies confirm the notion that medical and related services in areas with a high incidence of 'speed' use are frequently called upon to treat amphetamine-related problems—both physical and psychological.^{64, 67, 104, 109, 111, 120} Generally, little is done beyond acute detoxification. Hospitalization is apparently not common. (The Federal Poison Control Program Statistics are discussed below.)

In the Commission's 1971 national survey of psychiatric hospitals, amphetamines were mentioned as a primary or secondary factor in the diagnostic records of 68 (0.3%) of the 22,885 patients actually in residence

at that time.^{67, [d]} In British Columbia, general hospitals with psychiatric wards were surveyed as well; amphetamines were noted in the diagnoses of 3 of the 293 psychiatric patients in the reporting institutions. In the national mental health data gathered by Statistics Canada, amphetamines were considered together with "other psycho-stimulants" (excluding cocaine) in a general category.^{28, 118, [e]} Dependence on such drugs (ICD-304.6) was noted in the diagnoses of 176 (0.34%) of the first admissions and 95 (0.19%) of the readmissions to psychiatric hospitals and wards in Canada in 1970. Males outnumbered females by more than three-to-one in these data. It would appear that although various psychological and physical disorders are often noted in chronic amphetamine users, amphetamines are not presently a causal factor in a significant proportion of psychiatric hospital admissions in Canada. (See also Tables A.5, A.6 and A.7 in the Annex to this appendix.)

"SPEED KILLS"

In recent years, the slogan 'Speed Kills' has received much attention, and the idea appears to play a significant role in the attitude that some users and non-users have towards the drug. One commonly hears the view that once you're 'hooked on speed' you have only two to five years left to live. Some chronic 'speed freaks' incorporate this notion into the identity they present to others and the image they entertain of themselves. Many observers contend that the chronic use of intravenous amphetamines reflects a thinly disguised suicidal tendency, as well as an attention- and sympathy-gaining device. "Hello, I'm Philbert Desanex: I'm a speed freak and I'm going to be dead by fall," is only a slightly exaggerated caricature of the image purposefully projected by some of these individuals.

What is the evidence that 'Speed Kills' in the literal direct physical sense? Fatalities due to acute overdose are rarely documented.^{82, 89} We have no reliable knowledge of the extent of heavy amphetamine use, and, although we hear many dire predictions, there is no adequate information on the long-term prognosis or outcome of such use. It would certainly appear, however, that chronic adherence to this practice can be most detrimental to the individual and, often, to those with whom he interacts.

Although there is little evidence that the life expectancy of 'speed freaks' is lower than others living under similar circumstances, many investigators suspect this to be so.⁷⁴ Suicide during the withdrawal phase has been cited as a risk.³² While there are few cases in the literature of death directly attributed to chronic amphetamine use, Clement, Solursh and Van Ast mention "... a number of cases of death on the street [in Toronto] apparently related to high-dose amphetamine abuse. At autopsy, however, pathological evidence of death directly due to amphetamines is rare in such cases."⁸⁰ After a thorough review of the literature up to 1969, Cox and Smart of the Addiction Research Foundation reported: "Currently there is no evidence available on mortality rates among speed users and it is not certain that speed itself is a lethal drug. There is no evidence to support or deny that 'Speed Kills'."³⁵

The Commission has investigated, in considerable detail, reports of amphetamine-related poisonings and deaths in Canada.^{68, 105} The Federal Poison Control Program has records of approximately 600 toxic reaction or poisoning cases involving amphetamines or related stimulants in 1971.^{108, [4]} Of these, 296 cases were attributed to 'speed', 115 to phenmetrazine, 51 to amphetamine, 38 to dextroamphetamine and 20 to methamphetamine. Two reports of amphetamine fatalities were noted. The proportion of these cases associated with intravenous use was not indicated. Slightly more than half of the individuals were 10 to 24 years of age, and approximately one-quarter of the cases involved children under five. Overall, two-thirds of the patients were males.

Four deaths in the country were ascribed to amphetamines in the Statistics Canada *Causes of death* 1971 report—two were young people, and two cases involved persons over 45 years of age.²⁵ After a search of records, the coroners of three provinces (Ontario, Alberta and British Columbia) provided the Commission with detailed reports of ten deaths thought to be related to the use of amphetamines during the years 1969–1971.^{68, [5]} Only two cases were attributed directly to amphetamine poisoning or overdose. The remaining fatalities were due to hepatitis, gunshot wounds, and other accidents and suicides which were in some way associated with amphetamine use. All of these individuals were males, and eight were under 25 years of age. (Fatalities involving MDA are discussed in A.5 *Hallucinogens*.)

It would appear that even though large doses of amphetamines are physically toxic, these drugs rarely result in death as a direct acute overdose effect. Permanent consequences of chronic high-dose use on general physical condition, susceptibility to disease and overall longevity have yet to be fully clarified, but evidence is accumulating of detrimental effects in these areas.

DRIVING

As noted earlier, low doses of amphetamine typically result in a slight improvement in certain intellectual and perceptual abilities, reaction time and psychomotor performance. High or continuous doses likely result in detrimental effects on these functions, but there has been little direct experimentation in this regard. There is no available evidence that amphetamines have been a causal factor in a significant proportion of traffic accidents, although numerous anecdotes and case history reports have appeared in the literature. Evidence is accumulating, however, that under some conditions amphetamines may have detrimental effects on traffic safety, either through the direct effects of high doses or, indirectly, by preventing normal rest, facilitating overexertion and increasing driving exposure.^{87, 112, 129, 145} Further research is needed in this area, emphasizing the chemical detection of drugs in body fluids and tissues of persons involved in traffic accidents.

TOLERANCE AND DEPENDENCE

Tolerance to the various effects develops at different rates and to different degrees—some responses decline with chronic use sooner than others. The tendency to increase dose depends upon which of the potential drug effects is rewarding or reinforcing drug use. Many individuals, for instance, who use amphetamines to control narcolepsy may reach a stabilized dose and show very little need for increased quantity over a period of years. On the other hand, those using the drug to control appetite generally increase their dose since tolerance to the anorectic effect readily develops. Many psychological effects, such as the mood-elevating and stimulant response, may show a considerable sensitivity to tolerance, and individuals who either began using the drug to obtain these effects, or who acquired the taste for them after initially using amphetamines for other purposes, generally show a marked tendency to increase dose over time. Rapid tolerance reportedly occurs to the initial 'rush' following intravenous injection during a 'speed run'. Tolerance to some of the toxic properties occurs, and certain chronic users reportedly administer quantities which would be extremely toxic in a non-tolerant user. As with other drugs, the rate of tolerance development to the different pharmacological effects depends on the doses used, the frequency of administration, and various individual factors.^{41, 71, 81, 90}

The question of physical dependence on amphetamines depends on the definition of the withdrawal symptoms necessary to meet the criterion. While it is clear that withdrawing amphetamine from chronic users does not produce as dramatic and physically distressing an abstinence syndrome as that associated with alcohol, barbiturates, or opiate narcotics, many investigators feel that the fatigue, prolonged sleep, brain wave (EEG) changes, voracious appetite, cardiovascular abnormalities, occasional gastrointestinal cramps, muscle aches and pains, lethargy and, often, severe emotional depression following the 'speed binge' constitute a physiological reaction analogous to the more dramatic withdrawal seen with depressant drugs.^{32, 41, 77, 93, 113, 130, 146} As one 'speeder' told the Commission, "As high as you get when you're speeding, that's how low you get when you crash."

The tendency for tolerance-producing drugs to manifest a rebound type of physiological and psychological pattern upon withdrawal has been given considerable attention: amphetamine abstinence in chronic users is generally characterized by profound sedation and depression of mood and physiological function, while drugs such as alcohol, barbiturates and the opiate narcotics (all of which produce sleep in high doses) generally exhibit a withdrawal syndrome of severe and toxic overstimulation, in some instances to the point of convulsions.

The fact that amphetamines have a physically less intense withdrawal syndrome than most other dependence-producing drugs, clearly indicates that a profound physical dependence is not a necessary component in an overall severe drug dependency situation. Subjective psychological factors seem to

have considerably greater motivational importance in many instances—especially with chronic high-dose amphetamine use. While there is little evidence of any kind of physical dependence on moderate doses of amphetamines, psychological dependence on even low doses is frequently reported, and is considered by some to be a major hazard in both medical and non-medical use.

AMPHETAMINES AND OTHER DRUGS

As noted earlier, amphetamines are sometimes used in conjunction or in alternation with a variety of depressant drugs such as barbiturates, tranquilizers, alcohol and opiate narcotics. The amphetamine and barbiturate 'up-down cycle' has been described in both youthful and 'respectable' adult users at a variety of doses. Amphetamines may intensify, prolong or otherwise alter the effects of LSD, and it is reported that the two drugs are sometimes mixed. In addition, it would appear that the majority of youthful 'speed' users have also had experience with marijuana and a variety of psychedelic and other illicit drugs, although many confirmed 'speed freaks' rarely consume hallucinogenic substances. Persons primarily dependent on opiate narcotics also frequently make use of stimulants such as amphetamine and, more rarely, cocaine—either as mixtures of the drugs or used separately on different occasions. In some instances, younger heroin users initially began opiate narcotics use secondarily as an aid or self-treatment for unpleasant aspects of chronic amphetamine use and subsequently went on to prefer heroin to 'speed'. (See also Appendix C *Extent and Patterns of Drug Use*.)

Interactions between opiate narcotics and amphetamine are complex. Physiological antagonism occurs with some responses, but not others.⁷⁸ It has been reported that amphetamines may enhance the pain-relieving properties of opiate narcotics when the two are administered together.⁴⁸ In addition, amphetamines and narcotics together may have significant antidepressant properties.⁹⁴ In rodent studies, cannabis has been shown to intensify amphetamine stimulant activity, but also to reduce acute amphetamine lethal toxicity.^{49, 141} Interactions between amphetamines and drugs of the alcohol-barbiturate type are complicated. Under certain circumstances amphetamine may antagonize some of the effects of sedative drugs, including their lethal toxicity. In other areas however, the drugs may have additive effects. Amphetamines can reduce some of the symptoms of alcohol hangover.^{7, 88, 103, 116, 127, 149}

Antagonists

Numerous compounds which antagonize various effects of amphetamine are currently being developed and investigated for possible use in the treatment of amphetamine dependence. Amphetamines produce a variety of central and peripheral effects and compounds which inhibit some responses may produce little change in others.

Alpha-methyl tryosine (α MT) has been shown to reduce the central stimulant and pleasurable subjective effects of intravenous amphetamine.^{48, 62, 79, 135} In one recent series of studies employing intravenous doses of amphetamine (up to 200 mg), prior administration of 2 gm of α MT reduced self-rated amphetamine euphoria by 50%, and 4 gm almost eliminated the subjective effects entirely.^{60, 61} The response to phenmetrazine was reduced as well. The duration of the amphetamine blockage was 24–48 hours. Tolerance to the antagonistic effects of α MT rapidly develops if it is administered daily, but significant tolerance does not occur (and amphetamine blockade is still maintained) if the drug is given in sufficient dose at two-day intervals. Other than some feelings of slight sedation, no major side effects with α MT were reported. There was no indication that the drug was interfering significantly with normal autonomic nervous system functioning. Further research on the effects of chronic high-dose α MT administration is needed.^[1]

Other drugs which have been shown to block certain aspects of the amphetamine response include fenfluramine, methysergide and certain major tranquilizers such as chlorpromazine and pimozide (but not reserpine).^{15, 46, 62, 89, 140, 144} The recent development of immunoassay methods for the detection of amphetamines in body fluid raises the possibility of using similar antibodies to inhibit amphetamine effects in the living organism.⁹⁶ However, immunization approaches to amphetamine antagonism could be complicated by the close chemical similarities between amphetamine and certain natural hormones in the body such as adrenalin.

Even if effective antagonists were found for the subjective effects of amphetamine that reinforce its use in humans, such compounds might well have no effect on the action of other readily available stimulants (such as methylphenidate), which have quite different chemical structures and possibly other mechanisms of action.¹²⁵

A.4 COCAINE

INTRODUCTION

Cocaine is obtained from the leaves of *Erythroxylon coca*, a bush which is found in abundance in parts of South America. For more than a thousand years, the mountain Indians of Peru and Bolivia have chewed coca leaves for medical, non-medical and religious purposes. It is said that this practice provides renewed energy, endurance, and strength, reduces the need for food and water, improves the spirits, and helps the user withstand the discomforts of cold, illness, and fatigue. In the centuries before the Spanish invaded and conquered South America, coca played an important role in religious customs and ceremonies among the Incas.^{6, 7, 34, 54, 57}

The coca leaf was brought to Europe from the New World by adventurers and tradesmen and it gained a considerable degree of popularity in

certain areas. In Paris, in the latter part of the last century, coca elixirs, lozenges and tea were commonly taken. Mariani's famous *Vin Coca Mariani*, made from an infusion of coca leaf and wine, was used and acclaimed by thousands, including Gounod, Pope Leo XIII and other European notables.^{6, 35, 54} In the 1850s, cocaine, the principal active alkaloid in the coca plant, was isolated.^{7, 27, 54} The natural leaf typically contains about one per cent of this material.

Among the first to inquire into the medical usefulness of cocaine was Sigmund Freud, later to become the father of psychoanalysis. In addition to his own extensive personal use of the drug, Freud recommended cocaine for the treatment of morphine and alcohol dependence, asthma, digestive disorders, and for the relief of depression and fatigue.^{19, 27, 43} Freud's associate Carl Kroller demonstrated the powerful local anesthetic properties of cocaine in 1884. In the same year William Halsted, an American surgeon, discovered its nerve-blocking effects. Cocaine was soon hailed in many circles as a medical wonder drug.

Soon after cocaine was introduced, certain undesirable effects of the isolated and potent material began to appear. Dependence problems were frequently reported, even among the medical pioneers in the area, including Halsted.^{8, 43} However, little difficulty seemed to stem from the use of natural coca leaf or such products as coca tea and wine.

One of the more famous cocaine users was the fictitious prototype of detectives, Sherlock Holmes. In later books, Holmes gave up his use of cocaine and switched to the tobacco pipe.⁴³

In the United States, one of the most popular 'soft' drinks of all time, Coca-Cola®, was developed in 1888 using extracts of coca leaf (containing cocaine) and Kola nut (containing caffeine). Originally, Coca-Cola® was sold as a home remedy rather than a recreational drink. By 1906, when coca came under strict control in the United States, the natural cocaine had been removed from the drink. Large quantities of 'decocainized' coca extract are still used for flavouring purposes in the preparation of Coca-Cola®.^{28, 54}

Cocaine has mixed effects, but is generally considered a stimulant and is, in many respects, pharmacologically similar to the amphetamines.^{4, 26} The patterns and problems of chronic cocaine use, which began to appear soon after the drug was introduced, bear a marked resemblance to the more recently evolved conditions of amphetamine dependence. Although cocaine was often used a few decades ago by heroin users and others in some of the big cities in North America, it had, for a number of years, largely disappeared from the drug scene. Cocaine is back, however, and can no longer be considered rare in Canada. The use of cocaine is presently severely restricted by its high price and very limited availability. The drug is usually referred to as 'coke', 'snow', or 'flake', and occasionally as 'C', 'girl', 'fly', 'happy dust', 'lady', or 'rock'.

Cocaine is legally classified with the opiates, as a narcotic, although pharmacologically it has little in common with the opiate narcotics.

MEDICAL USE

The main medical use of cocaine today is as a local anesthetic or pain blocker, particularly in operations involving the eye. This use arises from the fact that low concentrations of cocaine block terminal sensory nerve fibres, and higher concentrations produce anesthesia by direct contact with mucous membranes and the cornea in the eye. Cocaine has also been used to treat asthma and colic, and for symptomatic relief in tuberculosis. The exploratory use of cocaine in the treatment of drug dependence at the turn of the century has been abandoned. Today numerous synthetic cocaine-like compounds have replaced cocaine in most of its former medical applications. For example, procaine (Novocaine®) and lidocaine (Xylocaine®) are widely used medically to block pain in local areas for surgical and dental work, and to reduce the pain from burns, earaches, etc.^{49, 55}

CHEMICAL ANALYSIS OF ILLICIT SAMPLES IN CANADA

Few cocaine samples have been subjected to careful chemical analysis in Canada. No cocaine was found among the 621 'street drug' samples reported in 1970 by Marshman and Gibbins in Toronto.³⁶ The Commission's national survey of analysis facilities and our own collection of drug samples in 1971-72 provide data on seven items alleged to be cocaine.^{40, [c]} Only four of these samples actually contained the drug. In addition, cocaine was found in four other samples where it had not been specified as such. The Health Protection Branch reported the quantitative analysis of 10 police seizures of cocaine in 1971-72.^{22, [b]} These samples ranged from 0.3%-94.2% cocaine with a median of 53.4%. Procaine and amphetamine are sometimes distributed as cocaine or are used to dilute it. Various sugars are reportedly also common diluents.

ADMINISTRATION, ABSORPTION, DISTRIBUTION AND PHYSIOLOGICAL FATE

Cocaine is a white crystalline powder. In medical practice today, cocaine is rarely applied internally or injected, but is usually administered topically. Epinephrine (adrenalin) is present in official medical preparations of cocaine. In non-medical usage in North America, cocaine is generally sniffed or, less commonly, injected intravenously. The Indians of Peru mix the raw coca leaf with a small amount of lime or vegetable ashes which aid in the extraction of the active alkaloid when the leaf is chewed.

The local vasoconstriction caused by the administration of cocaine limits the rate of its absorption. Nevertheless, cocaine is rapidly absorbed from all sides of application, including the mucous membranes in the nose and mouth, and in the gastrointestinal tract. However, if cocaine is swallowed much of it becomes ineffective before absorption due to chemical alteration in the stomach. Cocaine can be highly toxic because it is absorbed much faster than

it is excreted. Cocaine is partially excreted unchanged and may be detected in the urine, but most of a given dose is rapidly metabolized in the liver.^{16, 41, 49, 52, 55} A rapid and extremely sensitive immunoassay technique has recently been developed for the detection of cocaine metabolites in body fluids and tissues.³³

PSYCHOLOGICAL EFFECTS

In addition to eliminating pain in local areas, cocaine has powerful psychological effects. The general similarities between the effects of cocaine and amphetamine are so striking that some authorities have subsumed both drugs under the same general classification.^{4, 5, 26} Cocaine is much shorter acting, however, and the main effects of a single dose usually dissipate in less than an hour. In contrast to cocaine, the amphetamines do not have any local analgesic action. Most of the effects of cocaine, which are briefly summarized below, are similar to those of amphetamine described earlier.

Small doses of cocaine and coca leaf have long been reported to provide increased energy, muscle strength and capacity to work; a pleasant psychological lift; an improvement in reaction time and simple mental functions; and relief from the discomforts of hunger, thirst, illness and fatigue.^{6, 26, 34, 54} Most of these claims have not been subjected to rigorous scientific investigation, however.³¹ As with amphetamines, improvement in function is probably most noticeable when prior performance was low due to fatigue or boredom. There has been little research into the psychological effects of chronic cocaine use. A study in South America suggested slightly poorer intellectual functioning in coca chewers than in non-users, but limitations in the study preclude any simple conclusions.^{42, 46}

There is a considerable resemblance between the patterns of chronic intravenous cocaine use and the 'speed freak' picture discussed earlier in this appendix. The initial 'rush' or 'splash' from intravenous cocaine has been reported to be essentially the same as that associated with the use of amphetamine,³² although in other respects many stimulant users claim that the two drugs are subjectively different. Users become extremely self-confident in their physical and mental capabilities, may report increased self-insight and, like amphetamine users, often claim to experience more intense and pleasurable sexual orgasms while under the influence of the drug. Cocaine is very short-acting and a period of indescribable euphoria may be followed by considerable psychological depression within an hour after administration. Consequently the dose is often repeated at frequent intervals in patterns which may include several cycles per hour. Some users have been reported to consume several grams a day, although the actual doses of pure cocaine employed are not certain.

With repeated administration of large doses, a toxic psychosis can develop which is similar to the amphetamine psychosis previously described. As with 'speed', some chronic intravenous users have described the sensation

of animals or bugs burrowing under the skin. Several cases have been reported of individuals who have injured themselves while attempting to dig out imaginary 'crank bugs'. In a few instances, acute psychotic reactions with hallucinations and severely excited behaviour have occurred after a single injection. Some adverse reactions to topical application have also been noted in medical use. Severe paranoia and violence are not uncommon after long cocaine binges. Many observers attribute the classic popular picture of the 'crazed dope fiend' to the chronic user of cocaine—not the heroin user, as is often assumed.^{4, 26, 30}

In part because of its very limited use at the present time, significant adverse psychological reactions to cocaine are rare in Canada. None of the surveys of treatment facilities conducted by or reported to the Commission have specifically noted cocaine problems.^{23, 24, 38, 45, 47, 50} The national mental health data collected by Statistics Canada indicated only two psychiatric admissions attributed to cocaine dependence in the country in 1970.^{14, 48, [e]} (Poison Control Program Statistics are discussed below.)

PHYSIOLOGICAL EFFECTS

Cocaine's general CNS arousal or stimulant effects are similar to those produced by the amphetamines. Administration of cocaine causes an increased rate of respiration resulting in a rapid but shallow breathing pattern, raises body temperature and produces a marked widening of the pupils. Drying of the mouth and nasal passages occurs when cocaine is sniffed. With higher doses, tremors and convulsive movements result from cocaine's effects on motor systems in the brain and spinal cord. Small doses of cocaine cause a slowing of heart rate, but higher doses result in acceleration. The vasoconstrictive properties of the drug produce an initial rise in blood pressure, but this later reserves and pressure drops to sub-normal levels. As noted earlier, cocaine blocks nerve transmission in local application.^{4, 37, 49, 55}

As a result of its powerful blood vessel constricting effects, cocaine can damage tissues locally if injected, sometimes leaving small 'pock marks' at the site of injection. Long-term chronic sniffing of large amounts of cocaine can likewise destroy tissue in the nose. Holes in the nasal septum have been reported in some heavy users. Intravenous use of cocaine commonly involves the same problems of unsterile and shared syringes, contaminated drugs, etc., that cause difficulties in the injection of 'speed' and heroin.

There is little evidence of a significant incidence of adverse physiological reactions to cocaine in Canada. We have found no evidence of cocaine deaths in Canada in either our survey of provincial coroner's records or in the reports of Statistics Canada for 1969–71.^{11, 12, 13, 39} The Federal Poison Control Program has records of one cocaine adverse reaction in 1970 and six for 1971. None were recorded in 1969. No fatal cocaine poisonings were reported.^{10, 44, [f]}

TOLERANCE AND DEPENDENCE

In contrast to the amphetamines, it appears that significant tolerance does not develop to most of the effects of cocaine.^{4, 18, 31, 34, 53} In fact, increased sensitivity or 'reverse tolerance' with repeated use has been noted by some authors. It has been reported that individuals have self-administered several grams of cocaine in a single day, but that after a period of withdrawal they were still capable of accepting the same amount of drug without ill effects. Although chronic users often increase the frequency of administration and may take the drug several times an hour, there is little general tendency to increase the individual dose to obtain a 'high'.

There seems little question that cocaine can produce, in some individuals, psychological dependence in the sense that there is often a preoccupation with obtaining the drug, compulsive and repeated self-administration, and craving for the drug upon withdrawal in heavy users. The question of physical dependence is less clear. Most authorities feel that no significant physical dependence develops with cocaine use.^{4, 18} But here again the picture is quite similar to that of chronic 'speed' use. There does appear to be a disruptive syndrome which occurs upon the withdrawal of cocaine, characterized by overeating, prolonged sleep, and emotional depression. It has been suggested that this syndrome cannot be completely accounted for by the appetite suppression and sleep deprivation that occurs during the intake phase of cocaine use.²⁶ Thus cocaine, like the amphetamines, may be capable of producing some subtle kind of physical dependence, albeit in a form different from that produced by the sedatives and opiate narcotics.

COCAINE AND OTHER DRUGS

In spite of the similarity in effects of cocaine and amphetamine, there have been no reports of cross-tolerance between the two. Some of the effects of cocaine are blocked by reserpine, a major tranquilizer.⁵⁶ Some intravenous heroin users have been known to administer a mixture of cocaine and opiates, known as a 'speed ball'. An alternating pattern between the use of cocaine and opiate narcotics, similar to that noted earlier in the section on amphetamines, has also been described. The occasional sniffing of cocaine by users of marijuana and other psychedelic drugs has been reported, and cocaine and cannabis are sometimes used together. (See also Appendix C *Extent and Patterns of Drug Use*.)

A.5 HALLUCINOGENS

INTRODUCTION

One of the most remarkable and controversial drugs known today is *d*-lysergic acid diethylamide-25, also called lysergide, but better known as LSD or simply 'acid'. LSD is capable of producing profound and unusual psychological changes in almost infinitesimal doses, with relatively little other

pharmacological effect. Along with related drugs it has exerted significant influence in a variety of aesthetic, scientific, philosophic, religious and social areas over the past two decades. LSD is often considered the prototype of the drug class we have called *Psychedelic-Hallucinogens* (or simply *hallucinogens*), which includes a great number of synthetic and naturally occurring substances with somewhat similar psychopharmacological properties. To date, several thousand articles on LSD and related drugs have been published.

LSD was developed in 1938 by Hofmann and Stoll, in Switzerland, as part of a research program investigating potential therapeutic uses of certain ergot compounds.¹²⁹ LSD is a semi-synthetic derivative of lysergic acid, an ergot alkaloid produced by a parasitic fungus, or 'rust', sometimes found on rye or other grains. Closely related substances are also produced in the seeds of certain varieties of tropical morning glory. Most ergot alkaloids are not particularly psychoactive, although some may have a variety of powerful, and often toxic, physiological actions, and have been used for centuries for medical purposes.

Since LSD appeared to be relatively uninteresting in early animal physiological studies, it received little attention until Hofmann unwittingly ingested a minute quantity some years after its original synthesis.¹³⁰ He subsequently described his experience as follows:

In the afternoon of 16 April 1943, when I was working on this problem, I was seized by a peculiar sensation of vertigo and restlessness. Objects, as well as the shape of my associates in the laboratory, appeared to undergo optical changes. I was unable to concentrate on my work. In a dreamlike state I left for home, where an irresistible urge to lie down overcame me. I drew the curtains and immediately fell into a peculiar state similar to drunkenness, characterized by an exaggerated imagination. With my eyes closed, fantastic pictures of extraordinary plasticity and intensive colour seemed to surge towards me. After two hours this state gradually wore off.

To confirm his suspicion that LSD was responsible for this effect, Hofmann investigated further:

However, I decided to get to the root of the matter by taking a definite quantity of the compound in question. Being a cautious man, I started my experiment by taking 0.25 mg of d-lysergic acid diethylamide tartrate, thinking that such an extremely small dose would surely be harmless, and bearing in mind that the natural ergot alkaloids produce toxic symptoms in man only with doses exceeding several milligrams. After 40 minutes I noted the following symptoms in my laboratory journal: slight giddiness, restlessness, difficulty in concentration, visual disturbances, laughing.

And later:

I lost all count of time. I noticed with dismay that my environment was undergoing progressive changes. My visual field wavered and everything appeared deformed as in a faulty mirror. Space and time became more and more disorganized and I was overcome by a fear that I was going out of my mind. The worst part of it being that I was clearly aware of my con-

dition. My power of observation was unimpaired.... Occasionally I felt as if I were out of my body. I thought I had died. My ego seemed suspended somewhere in space, from where I saw my dead body lying on the sofa It was particularly striking how acoustic perceptions, such as the noise of water gushing from a tap or the spoken word, were transformed into optical illusions. I then fell asleep and awakened the next morning somewhat tired but otherwise feeling perfectly well¹³⁰

Since various aspects of the LSD experience were later thought to resemble symptoms of naturally occurring schizophrenia, many investigators became interested in using LSD as a tool for producing an artificial or 'model psychosis' in the laboratory. The possibility of gaining insight into psychiatric disorders by the study of the LSD-induced state stimulated considerable activity in medical and scientific communities and the terms *psychotomimetic* (psychosis mimicking) and *psychotogenic* (psychosis producing) were coined. The subsequent discovery that the LSD experience is, in fact, generally different from natural psychoses has lessened interest in this aspect of its use. The descriptive label *hallucinogenic* (hallucination producing) has gained wide acceptance, although there is some controversy regarding the importance or frequency of hallucinations in the LSD experience. The term *illusinogenic* (illusion producing) is probably more appropriate.

In the 1950s, the exploration of LSD as an aid to psychotherapy began. Much of the early investigation of the use of LSD in the treatment of alcoholics was conducted in Canada under the direction of Abraham Hoffer at the University of Saskatchewan. In 1957, after reviewing the various descriptive names given LSD and related drugs, Humphrey Osmond, then Superintendent of the Saskatchewan Hospital, suggested the terms *psycholytic* (mind releasing) or *psychedelic* (mind manifesting) as more appropriate general labels.²²⁸ For various reasons the latter has gained worldwide usage, although its common application has strayed considerably from its original context, and the word psychedelic may now denote general styles of art, fashion and music which are, in some sense, felt to reflect, enhance, or substitute for the psychedelic drug experience.

In this report, the labels "psychedelic", "hallucinogen" or "psychedelic-hallucinogen" are used interchangeably to refer generally to LSD and LSD-like drugs and, for practical purposes, are considered synonymous.

Non-medical interest in LSD, psilocybin and mescaline began to grow during the 1950s, although such use was apparently largely restricted to a few professional, academic, and artistic experimenters. The drug gained continental notoriety in the early 1960s as a result of experimentation by two Harvard University psychology professors, Richard Alpert and Timothy Leary, who invited other 'explorers' to "Turn on, tune in, and drop out" of the existing social institutions. Their unorthodox religious orientation to the LSD experience is presented in *The Psychedelic Experience*, (a 'trip' manual based on *The Tibetan Book of the Dead*), which became one of the 'bibles' of the psychedelic drug movement.^{177, 180} Another significant influence, with

considerably less religious orientation, was writer Ken Kesey's group, the adventures of which are well documented in *The Electric Kool-Aid Acid Test*.³²⁵

Since 1963, the Canadian Government has controlled the medical and scientific use of LSD, and in 1969 the possession of LSD without governmental authorization was made a criminal offence. Regulation of the legal supply of LSD has apparently had little effect on 'street' use, however, since essentially all of the drug illicitly used has come from clandestine laboratories. Since LSD is odourless, colourless and tasteless in solution and active in almost invisible quantities, effective legal control of its transportation, distribution and use has been extremely difficult. (See also Appendix B *Legal and Illegal Sources and Distribution of Drugs*.)

MDA (methylenedioxyamphetamine) and STP (DOM, dimethoxymethylamphetamine) are synthetic drugs, intermediate in structure between mescaline and amphetamine with some pharmacological properties of each. Closely related compounds which are rarely found on the illicit market include MDMA, TMA and DOET. Relatively little information is available regarding the non-medical use of these drugs and the effects produced by such use.

MDA was originally explored medically for its amphetamine-like properties, and has been shown to have some anti-depressant and appetite-suppressing effects, but it is currently legally available only for experimental purposes. MDA is in some respects similar to, but more potent than mescaline.^{100, 113, 286} The non-medical use of MDA has increased considerably in Canada during the past few years.

STP first appeared on the illicit market in California in 1967, where it was heralded as a "megahallucinogen"—a drug "one hundred times as potent as LSD", which was capable of producing an hallucinogenic 'trip' lasting for several days. The label STP is presumably a satirical reference to a commercial automobile engine oil additive (Scientifically Treated Petroleum). Later the words "serenity, tranquility and peace" were appended to the initials. The chemical identity of STP was uncertain for some time and it is likely that the label has been applied to several different drugs and drug mixtures in the past. A number of illicit samples were finally identified as DOM, an experimental compound originally developed by the Dow Chemical Company of California. Since then the letters STP have generally been taken to refer to DOM. In this report STP and DOM are considered synonymous. In spite of the "megahallucinogen" reputation, DOM is considerably less potent than LSD, and 'trips' of long duration are only achieved with unusually large doses.^{214, 235, 281}

Phencyclidine or PCP (Sernyl®, Sernylan®) is sometimes called 'the peace pill', 'angel dust' or 'hog'. It was developed in the late 1950s for use as a sedative, general anesthetic and analgesic. After considerable clinical testing its use in humans was discontinued, in part because it often produces agitation and psychotomimetic effects at moderate to high doses. Phencyclidine is still marketed for veterinary purposes, and is the 'animal tranquilizer'

often noted in mass media reports of illicit drug use. It has some subjective effects in common with LSD, but PCP is typically much more sedating, and produces a different pattern of physiological response. Some investigators feel that PCP is pharmacologically more similar to the general anesthetics or volatile solvents than to LSD. The use of PCP in Canada has become significant in the last few years. There is a significant body of clinical data on PCP, but relatively little scientific information exists regarding its non-medical use and associated consequences.^{78, 79, 234}

While LSD has had a rather short, and somewhat stormy history, numerous naturally occurring substances with apparently similar psychological effects have been used in the Western Hemisphere for centuries. Perhaps the most widely known are mescaline, from the peyote cactus (*Lophophora Williamsii*) and psilocybin (and psilocin), the active principles in certain 'sacred mushrooms' (teonanactl or *Psilocybe mexicana*). The subjective effects of LSD, mescaline and psilocybin are almost indistinguishable, except that psilocybin has a much shorter duration of action.^{4, 140, 324} Other related plant materials include the Mexican morning-glory *ololiuqui* (*Rivea Corymbosa*), and DMT (dimethyltryptamine) which is found in special snuffs used for centuries by certain South American Indians. Harmine and harmaline occur in the *caapi* plant, which is used in the form of a drink by Amazonian natives. Some of these botanical substances were considered divine by the ancient Aztecs and played an important role in religious ceremonies long before the Spanish invaded the land. In spite of the Conquistadors' attempts to destroy the culture and its historical and religious underpinnings, the sacramental use of peyote, for example, spread to the Mexican Indians and, later, in the 19th century to certain North American tribes. Today, peyote is used in religious ceremonies by the Native American Church which has over 200,000 Indian members from 82 tribes in Canada and the United States.^{3, 64, 172, 186, 261}

The ritual use of hallucinogenic substances by a contemporary Yaqui Indian sorcerer or 'man of knowledge' in Southwest United States has recently been documented in detail by an anthropologist, Carlos Castaneda, in three monographs.^{53, 54, 55} These books record the events which took place during Castaneda's period of apprenticeship to Don Juan, and describe his experiences with peyote, Jimson Weed (*Datura stramonium*) and psilocybin mushrooms.

The *Amanita muscaria* or fly agaric mushroom grows wild in many areas of the world. Its use for psychotropic purposes is best documented, in recent times, in parts of Siberia. Gordon Wasson has conducted a remarkable investigation of *Amanita muscaria* and has proposed that it is the divine soma described in the earliest Hindu literature some 3,000 years ago.³¹⁸ Recently, in *The Sacred Mushroom and the Cross*, John Allegro presented the thesis that this mushroom played a significant role in early Christianity.¹¹ Although *Amanita muscaria* and several varieties of psilocybin mushrooms grow untended in many areas of Canada, it would appear that these mushrooms have been ingested by only a few exceptional experimenters in this country. There is no evidence that the native Indians of Canada have used these mushrooms.

The common spice nutmeg (and mace) has had a long history of medical and non-medical use as a drug which parallels in many respects that of cannabis. The effects of nutmeg and cannabis are remarkably similar, although the nutmeg 'trip' is considerably longer in duration. The nutmeg tree (*Myristica fragrans*) is cultivated in many tropical areas of the world. The active principles of nutmeg are structurally very similar to amphetamine, mescaline and MDA. The use of nutmeg for its psychotropic properties has often been noted in certain groups in North America, but such use has apparently never been extensive.^{97, 266, 302, 319}

Certain belladonna alkaloids, such as scopolamine, and other anticholinergic drugs which produce sedation in low doses, but hallucinogenic effects with larger quantities are discussed below in A.8 *Minor Tranquilizers and Non-Barbiturate Sedative-Hypnotics*. There is also some discussion of drugs with certain hallucinogenic properties in A.9 *Volatile Substances: Solvents and Gases*.

Until relatively recently, psychedelic drugs received little general public attention, even though some had been intensively explored over the past century by various writers, scientists and adventurers. Based on his mescaline experimentation, Aldous Huxley presented, in his twin volumes *The Doors of Perception* and *Heaven and Hell*, one of the most lucid and perceptive analyses of some of the possible personal, philosophical and social implications of the psychedelic experience.¹³⁸

The pharmacological classification of cannabis is the subject of much controversy. Cannabis has certain characteristics in common with a wide variety of drugs; under various conditions and doses it has been shown to have stimulant, sedative, analgesic and psychedelic properties. Many investigators feel that cannabis should have a separate and unique category. As it is most commonly used in North America, cannabis in low doses resembles alcohol in some subjective effects. Larger doses are more psychedelic, and with very high doses certain LSD-like experiences are reported. It is clear that any attempt to completely specify a pharmacological classification for cannabis must include a clear delineation of dose, as well as the set and setting of use. The Commission has classified cannabis with the psychedelic-hallucinogen drugs. Since cannabis has already been dealt with in great detail in a separate final report, little further reference will be made to cannabinoid drugs in the present discussion.⁴⁷

LSD is the best studied and most frequently encountered psychedelic-hallucinogen in Canada (excluding cannabis), although in recent years, significant quantities of PCP and MDA have been identified. STP is only occasionally found. The use of other LSD-like drugs appears to be rare in this country. Although one frequently hears fascinating stories of exotic drugs created by 'hippie chemists', there is no evidence that such compounds are used significantly. The general discussion which follows focusses primarily on LSD, with references to other related drugs, including PCP, MDA, mescaline, and psilocybin, where distinctions are appropriate and data are available.

MEDICAL USE

There is currently no widely accepted medical use of LSD, although it may be employed experimentally for therapeutic purposes. There have been numerous impressive reports of LSD successes in the treatment and rehabilitation of alcoholics, opiate narcotic dependents, criminals and various psychiatric patients.^{105, 126, 178, 257} LSD has also been used with patients dying of cancer, to alleviate their anxiety and pain, and to help them adjust to the prospects of death.^{157, 230} Many of these leads have not been followed up with adequate scientific investigation, however, and several recent controlled studies have not substantiated the claim that LSD adds to the effectiveness of conventional psychotherapy.^{75, 171, 196, 272}

Two basic forms of psychological treatment with LSD have developed: *psycholytic* therapy, which uses small or moderate doses on repeated occasions, sometimes over a period of several months; and *psychedelic* therapy which calls for higher doses and a more profound acute effect and is, as a rule, given only once or twice. While some investigators claim that LSD, itself, is more effective than psychotherapy, others claim that its usefulness is mainly limited to the removal of therapeutic 'blocks' which may occur at times in the course of psychotherapy. Still others feel that LSD has no useful contribution to make to psychiatric treatment. Most clinicians who have had experience with this form of therapy stress the need for a careful selection of patients and for special qualities and experience in the therapist.

More sophisticated scientific investigations of possible therapeutic uses of LSD are underway and may help clarify some of these issues. It seems justified to say at this time, however, that the general medical effectiveness of LSD has not been adequately demonstrated.

Phencyclidine (PCP) is no longer employed as a sedative-anesthetic in humans, although it is available for veterinary purposes. Various forms of MDA (e.g., MER-22, SK&F 5 and SK&F L-5) have been evaluated in the treatment of schizophrenia and depression, and were investigated for their anorectic (appetite-suppressing) effects. MDA is not used medically at the present time, however.^{24, 78, 79, 80, 100, 113, 134, 222}

CHEMICAL ANALYSIS OF ILLICIT SAMPLES IN CANADA

Illicit drug samples submitted to authorized laboratories for identification are often those suspected of being adulterated, some other drug than it was alleged to be, or the cause of adverse or unusual reaction. Even though such samples cannot be considered representative of the available illicit drugs, some useful general information can be obtained from an examination of the data from these laboratories. The Commission's national survey of drug analysis facilities in Canada during 1971-72 and our own collection of illicit samples provide considerable data on LSD and related drugs.^{218, [c]} These two sources of data are considered together in the following summary.

Of 162 samples alleged to be primarily LSD:

- 69% were LSD alone
- 9% contained LSD and other drug(s)
- 9% were other drug(s)
- 5% were primarily products of faulty or incomplete LSD synthesis
- 8% contained no drug

Of ten samples presented specifically as LSD mixtures, only one was the alleged combination, and the remainder contained LSD only. In addition, LSD was frequently found in samples represented as other drugs. A total of 45 LSD-PCP combinations were found, only one of which was presented to the analyst as such. Seven samples of LSD-barbiturate mixtures were reported, but no other specific LSD combination occurred more than a few times each in these data. A total of 208 relatively pure LSD samples were found, and of 183 for which some alleged identity had been specified, 111 (61%) had been presented as LSD.

Of 64 samples alleged to be primarily MDA:

- 42% were MDA alone
- 20% were MDA and other drug(s)
- 27% were other drug(s)
- 11% contained no drug

Of 12 samples presented specifically as MDA mixtures, none had the alleged composition and seven contained only MDA. A total of 52 samples of unadulterated MDA was found, and of the 42 for which an alleged identity had been specified, 27 (66%) had been presented as MDA. MDA combinations included LSD, PCP or amphetamines. No evidence of faulty synthesis of MDA was noted in these data. Two samples of MDMA and 17 STP (DOM) samples were reported. All of the STP-containing samples had been presented as some other drug.

Forty-seven samples of PCP alone were found, as well as 57 PCP combinations (45 with LSD and 9 with methamphetamine). No indications of faulty or incomplete PCP synthesis were noted. In spite of the fact that PCP was detected in a total of 104 samples, there were only two cases which were presented as PCP or PCP mixtures. In every other instance the drug was either alleged to be something else or its identity was not specified. Eighteen of 26 alleged tetrahydrocannabinol (THC) samples were actually PCP, and none contained THC.

There were 171 samples alleged to be mescaline, but only five (3%) contained any trace of that drug. One hundred and thirty-five (79%) were other drug(s) and 31 (18%) contained no drug. The samples erroneously presented as mescaline included 43 LSD, 33 LSD and PCP, 18 PCP, 11 STP, 9 methamphetamine, and a variety of other drugs.

Thirty-two samples were alleged to be psilocybin. This drug was tentatively identified in only one case. Twenty (63%) of the samples were other drug(s) and 11 (34%) contained no drug. Fifteen of the samples were actually LSD.

In an earlier study, Marshman and Gibbins of the Addiction Research Foundation reported on the composition of 621 illicit drug samples collected and analysed in Ontario between January 1969 and February 1970.²⁰¹ The data reported is generally similar to that presented above. Of 176 alleged LSD samples, 56% were relatively pure LSD. None of 58 alleged mescaline samples contained any of that drug (about half were LSD). The analysts were unable to detect the presence of a second drug in any of 46 samples which had been presented as combinations. There were 29 samples of MDA submitted for analysis, of which 62% had been presented as that drug. Only a few PCP samples and PCP-LSD mixtures were identified at that time.

The Federal Health Protection Branch (HPB) has informed the Commission of the quantitative analysis of several hundred hallucinogen samples selected from among those seized by the police during June 1971–October 1972.^{114,[b]} Many of these samples had been chosen for this special analysis because of previously detected impurities and, consequently, they cannot be considered representative of either the drugs on the street or of police seizures in general. Of 229 samples containing LSD, 166 (73%) contained no impurities or other drugs, 34 were LSD-PCP mixtures, and 16 contained LSD and methaqualone. No other mixture occurred more than a few times. Products of faulty or incomplete LSD synthesis were sometimes noted. Because of the frequency of LSD-PCP mixtures in police seizures, HPB officials considered this combination as a separate category rather than as an incidence of adulteration. Excluding the LSD-PCP mixtures, the 117 unit doses of LSD-containing samples analysed ranged from a mere trace of LSD up to 305 mcg of pure LSD, with a median of 141 mcg. Only 8 of 73 PCP-containing samples did not include another drug in combination. These eight PCP samples contained between 1.7 and 49.0 mg PCP each with a mean of 10.9 mg. Median quantitative values for 26 unit doses of LSD-PCP mixtures were 41 mcg of LSD and 1.8 mg of PCP. There were also 10 PCP-ephedrine mixtures, in which a mean of 4 mg PCP was present. No products of faulty or incomplete synthesis of PCP were noted.

Of 126 seizures of MDA analysed by HPB in this series, only 7 contained other drugs (heroin, methamphetamine or PCP). Sixty-one unit dose samples ranged from 0.6 to 107 mg pure MDA, with a median of 37.5 mg. The 57 samples found in powder or bulk form were between 0.1% and 91.3% pure MDA, with a median of 36.6%. Fifteen seizures of LBJ (methylpiperidylbenzilate) were analysed, of which only three did not include other drugs. These samples typically contained a little over one milligram of LBJ per unit dose. By-products of synthesis were found in 11 cases.

Overview

Subject to the sampling restrictions noted, the data available on the analysis of illicit drugs allows some tentative conclusions regarding the hallucinogenic drugs used non-medically in Canada. Excluding cannabis, LSD is the most frequently encountered of these drugs. For example, LSD alone or in combination with other drugs was detected in 292 (66%) of the 445 hallucinogen (non-cannabis) samples in the Commission study. PCP was found in 104 (23%) and MDA was identified in 72 (16%) of these samples. (Note that because of drug mixtures, these categories are not mutually exclusive.) In total, LSD, PCP, MDA, or combinations involving these drugs made up 94% of such samples. Data from the Addiction Research Foundation and the Health Protection Branch provide generally similar pictures. STP and LBJ have been identified on only a few occasions. Other LSD-like drugs, including mescaline and psilocybin, have rarely been documented in Canada. The Commission's data is particularly significant in this regard since special effort was made to obtain information on rare or unusual drugs or combinations, yet on analysis, samples of such substances were almost invariably found to contain only common drugs. It is obvious from the data that misrepresentation often occurs in the illicit market and that the LSD and related drugs available are highly variable in both purity of the material and the quantity contained in a unit dose. The user has little objective basis for assessing the identity, quality or dose of such drugs prior to use.

Drug combinations are not uncommon, but with the exception of PCP, most samples contain only a single active compound. The present studies are biased in favour of collecting and identifying mixtures and unusual drugs and consequently exaggerate the frequency of their occurrence in the general illicit market. While a few unusual combinations of several different substances have been identified, the vast majority of mixtures are made up of only two common drugs. Samples which are represented as mixtures on the illicit market are rarely as alleged and typically contain only one active substance.

In Manitoba, a poisoning was attributed to an overdose of the stimulant strychnine, which had reportedly been sold as MDA.²¹⁷ In all of the data reviewed here, strychnine was not found in any of the combinations where it was alleged to occur, but was reported in 4 other instances. Strychnine was not found in any of 2,000 police seizure drug samples analysed by the HPB in 1971,¹¹⁴ nor has it ever been identified in the analyses conducted at the Addiction Research Foundation of Ontario.

It would appear that most of the LSD available on the illicit market is of reasonable quality, although evidence of crude manufacture is present in some samples. Available data suggest that 140 mcg is a typical unit dose in Canada. Concern has been expressed regarding the possible toxic properties of ergot alkaloids present in a few samples as a result of faulty or incomplete LSD synthesis. Since there has been no direct testing of the biological activity

of such samples, firm conclusions can not be drawn. Serious toxicity would seem unlikely at typical LSD doses because of the small quantities of ergot compounds generally involved, although unusually large doses of poorly synthesized LSD may involve some risk.

It would appear that PCP is rarely identified as such on the illicit market, but instead is sold alone or in mixtures, primarily represented as mescaline, THC or, less commonly, other rare drugs. Consequently, epidemiological data involving self reports by users, as well as clinical data of adverse reaction or poisoning, are likely to grossly underestimate the involvement of PCP. Chemical identification of the drugs used in such reports is almost non-existent at the present time. Any PCP cases are likely to be erroneously attributed to other drugs. Reports involving the illicit use of mescaline or psilocybin are likely to actually represent LSD and/or PCP cases.

There has been some concern in the literature that the illicit production of PCP carries a special risk of 'missynthesis', the by-products of which may be highly toxic.²³⁷ Although the original source of the illicit PCP is uncertain, no evidence of products of faulty or incomplete synthesis of this drug has been found in Canada.

It is interesting that PCP is the only drug in these data which occurs less often alone than in combination with other drugs (primarily with LSD). This is especially significant for the discussion of drug effects which follows, since there is virtually no experimental information available on PCP-LSD interaction in humans.

ADMINISTRATION, ABSORPTION, DISTRIBUTION AND PHYSIOLOGICAL FATE

LSD and most related drugs are usually taken orally, but may be sniffed in powdered form or injected in solution. Some can be effectively smoked. While LSD is available in ordinary capsules or tablets, it is often impregnated in such innocuous substances as sugar cubes, candies, biscuits, and cloth or blotter sections for oral use. LSD is well absorbed from the gastrointestinal tract, is distributed rapidly in the blood and easily diffuses into all tissues including the brain, and in pregnant females crosses the placental barrier into the fetus. LSD does not have any particular affinity for neural tissues and approximately one per cent actually reaches the central nervous system. Essentially all of the LSD in the body is metabolized in the liver and excreted in the urine in the form of inactive compounds. Likewise, MDA and PCP are primarily excreted in the urine in the form of metabolites.^{9, 64, 78, 79, 234, 281}

Recently developed radioimmunoassay techniques allow the rapid detection of minute quantities of LSD in body fluids and tissues.^{71, 312} PCP, MDA, STP, mescaline and psilocybin can be detected in body fluids and tissues by standard analytic methods.^{19, 57, 58, 156, 288, 294}

PSYCHOLOGICAL EFFECTS

LSD is one of the most potent biologically active substances known and can exert noticeable psychological effect with 20–30 mcg (millionths of a gram)—an almost invisible quantity of pure LSD. Taken orally, LSD effects typically occur within an hour and peak at 2 to 3 hours, but may be much faster; response to intramuscular injection usually appears within ten minutes; and if the intravenous route is used, the latency may be only a few minutes or less. Intraspinal injection produces an almost instantaneous effect. The duration of the action depends to a certain extent on the amount taken, and with typical doses, major effects usually last 6–10 hours with gradual recovery over a similar period. Peak effects correspond with blood levels of LSD.^{9,64}

Depending on dose, the duration of major effects of mescaline, MDA, STP and PCP may be comparable to those of LSD. The main effects of psilocybin dissipate very rapidly, and usually last only a few hours, and DMT is even shorter acting. The following figures represent typical oral doses of these various drugs as noted in the scientific literature, but cannot be taken as precise quantitative equivalents.^{4,78,127,140,244,265,324}

LSD	0.1–0.2 mg (thousandths of a gram)
Psilocybin	5–10 mg
STP (DOM)	5–10 mg
PCP	5–10 mg
MDA	75–150 mg
Mescaline	250–500 mg

The psychological effects of LSD and related drugs are not readily predictable, and are determined to a considerable degree by various personality factors in the individual; his past history and experiences; his attitudes, expectations, and motivations; the general setting in which the drug is taken; persons accompanying the 'trip'; and external events occurring during the experience. While the psychological response to LSD is to some extent dose-related, certain effects appear to be relatively independent of dose over a considerable range. Increased quantities often seem to affect the duration more than the intensity or quality of the 'trip', although with very high doses confusion and disorientation are more likely to occur.^{6, 61, 98, 127, 141, 239}

Subjective psychological effects of LSD and LSD-like drugs are extremely difficult to describe and many scientists are quite pessimistic about the possibility of presenting an objective list of responses which in any way communicates the essence of the experience. The intensely personal nature of the effects further limits description and generalization. Pahnke and Richards²³² have described several major types of psychological experience which have been reported with psychedelic drugs. The outline presented below is based on that proposed by these researchers. While the list is certainly not exhaustive and does not describe necessarily discrete or non-overlapping

categories, it provides a convenient basis for the discussion of LSD-like effects. It should be noted that not all of the experiences listed happen in all sessions or in all individuals, although several may occur in varying degrees, in sequence or simultaneously, during a 'trip'. The relative frequency of these various experiences is not indicated by the order in which they are presented here.

First is the *psychotic adverse reaction*, or 'freak-out' which may be characterized by an intense negative experience of fear or 'nightmarish' terror to the point of panic, complete loss of emotional control, paranoid delusions, hallucinations, catatonic features, and, perhaps, profound depression and sense of meaninglessness. Such states are usually of short duration, although prolonged reactions have been noted.

Second is the *non-psychotic adverse reaction* in which the person may experience varying degrees of tension, anxiety and fear, unpleasant illusions, depression and despair. Inappropriate or disordered social behaviour may occur. This kind of reaction may differ from the first in the intensity of the experience and in the degree of control and 'reality contact' expressed by the individual. Such unpleasant experiences are commonly labelled 'bad trips' or 'bummers'.

Third is the *psychodynamic psychedelic experience* characterized by a dramatic emergence into consciousness of material which had previously been unconscious or suppressed. Strong emotional feelings can accompany what may be experienced subjectively as a reliving of incidents from the past or a symbolic portrayal of important conflicts. Such effects are often sought in LSD psychotherapy.

Fourth is the *cognitive psychedelic experience* characterized by an impression of astonishingly lucid thought. Problems may be seen from a novel perspective, and the interrelationships of many levels of meaning and dimensions may be sensed simultaneously. The relationship between this experience and naturally occurring insight and creativity has been the subject of considerable interest and speculation.

Fifth is the *aesthetic psychedelic experience* characterized by a change and intensification of all sensory impressions, with vision often most affected. Fascinating alteration in sensation and perception may occur; *synesthesia* or crossing-over of sensory modalities may be produced (music and other sounds may be "seen", for example); objects such as flowers or stones may appear to pulsate or "become alive"; ordinary things may seem imbued with great beauty; music may take on an incredible emotional power; and visions of beautiful colours, intricate geometric patterns, architectural forms, landscapes and "almost anything imaginable" may occur.

The sixth type of psychedelic experience has been called by such names as *psychedelic-peak*, *cosmic*, *transcendental*, or *mystical*. Some of the psychological phenomena which are said to characterize this experience, are: a sense of unity or "cosmic oneness" with the universe; a feeling of transcendence of time and space; a deeply felt positive mood of joy, blessedness,

love, and peace; a sense of sacredness, awe and wonder; a feeling of profound theological or religious awareness; a feeling of insight into reality at an intuitive, non-rational level; an awareness of things which seem logically contradictory and paradoxical; and a belief that the experience is beyond words, non-verbal and impossible to describe. The full peak experience, in its entirety, does not occur in the majority of individuals, is usually transient, and does not last for long in its full intensity, although it may have persisting effects on attitudes and behaviour.

With few exceptions, little general information can be given as to the relative frequency of occurrences of these various types of psychedelic drug reaction since the response is largely determined by such variable factors as the particular individual involved, his set and the setting. As is often the case in science, techniques designed to measure the effects of these drugs may greatly influence or distort the phenomenon under study. Savage has pointed out, that unless the LSD experience takes place

... in a secure setting, with sufficient emotional support where S (the subject) feels safe to encounter the bizarre and often powerful manifestations of his own mind unharassed by tests, interpretations, and the coldly precise scientific analytic attitudes, the only result can be confusion and paranoia.²⁶⁸

Reports of "objective study" of LSD's subjective effects vary considerably in content and often appear to be as much a function of the individual scientist's conceptual orientation and experimental method as they are of the subjects and the drug itself. Some researchers report that LSD experiences in their subjects are definitely unpleasant and anxiety-ridden, and that subsequent sessions are uniformly avoided, while other scientists claim that anxiety is infrequent and that subjects generally enjoy the sessions and are eager to participate further.^{122, 269, 304} Experiences in non-supervised and indiscriminate settings are undoubtedly even more variable.

It is generally reported that LSD has deleterious effects on performance on tests requiring a high degree of attention, concentration or motivation. It is often difficult to get meaningful data from such measurements, since subjects frequently become engrossed in the subjective aspects of the drug experience and lose interest in the tasks presented by the investigators. Psychological tests are often seen as absurd or irrelevant by the subjects. After the drug, performance on standard tests of intelligence, learning, memory and other cognitive functions, as well as certain psychomotor tasks generally show temporary impairment, sometimes lack of change and, more rarely, some improvement.^{67, 127, 131, 150, 170, 247, 276, 322}

In some situations gross impairment of judgment may occur, but this is not common under experimental conditions. Later recall of events occurring during the drug experience is generally good, and amnesia is rare. PCP produces more disorganization of thought and confusion than the other LSD-related drugs. Delirium, agitation and other features of alcohol-like inebriation are commonly reported with high doses of PCP, but not with the other drugs discussed in this section.⁷⁸

Effects on driving skills have not been systematically investigated, although related experimental data, reports by users, and certain eye witness accounts, suggest that driving ability would usually be drastically reduced by the acute effects of LSD. There is no evidence that the drug has been a significant factor in automobile accidents or traffic violations, however.^{163, 204, 227, 315} Apparently few LSD users drive while under the influence of the drug. Further research in this area is needed—especially the investigation of persons involved in traffic accidents. Recent advances in the detection of LSD and related drugs in body fluids and tissues enable a more sophisticated approach to such study.⁷¹

Changes in visual perception usually play an important role in the psychedelic drug experience. Colours often appear clearer, brighter and more vivid, and alterations in the form or size of objects are typically noted. Subjects report that afterimages last longer, and tinges of colours or “halos” may be seen around the edges of certain objects. The sense of visual depth is usually enhanced but may be decreased, perspective is often altered, and stationary objects may seem to undulate and change in contour and shape.^{33, 46, 112, 127, 141, 164, 202, 246} Profound changes in visual imagery are among the most characteristic effects of drugs of this class.^{67, 138, 169, 186, 267} The stimulation of visual imagery is most pronounced in the dark when the eyes are closed, although the sensations may also occur to lesser degrees when the eyes are open and, more rarely, under normal lighting conditions.²³² Visions of luminescent colours, flashes of light, gem-like objects, intricate geometric and kaleidoscopic patterns, landscapes, and architectural forms are commonly reported. Stimulation of other sensory modalities such as hearing may induce changes in these visual phenomena.^{112, 117, 165} Kluver has suggested three general perceptual forms which typically occur: spiral-like; tunnel- or funnel-like; and grating or lattice-type forms.¹⁶⁸ Commission research has confirmed the existence of these visual form constants and other LSD-like visual imagery effects with THC and marijuana.^{216, 268} MDA is apparently less likely than the other LSD-like drugs to produce these visual effects.²²²

Some subjects report that LSD enhances certain subjective qualities of other sensory modalities as well. Music may be especially beautiful, and some persons report that the taste of food and drink becomes more vivid, and the sense of smell more acute after the drug. Evidence of objective changes in these areas are limited, however, and many individuals do not experience significant alteration in auditory, gustatory or olfactory perception.^{77, 112, 124}

Changes in the perception of one's body and limbs (often called body-image) commonly occur with psychedelic drugs. Subjects regularly report that body parts feel strange or unusual, as if shape, size, weight and various bodily sensations were altered or distorted. Changes in tactile perception are typical and include numbness, increased sensitivity to textures and shapes, and a tingling feeling in the skin. Parts of the body or mind may feel as if detached or floating free. Dreamy, floating sensations are very common, but often come and go in wave-like fashion.^{33, 61, 112, 150, 187, 189, 199, 202}

One of the most uniformly cited and significant effects of LSD and related drugs is the alteration of ordinary time perception or time sense. Subjective time is almost invariably faster than objective "clock time" with psychedelic drugs, and subjects typically overestimate the passage of time. Moments may seem like hours, and time may seem to be transcended. Pleasant experiences may extend indefinitely, or, on the other hand, an acute 'bad trip' may seem like an interminable horror. PCP, in contrast to the other drugs discussed here, tends to produce an underestimation of time. Time perception effects may be related to changes in short-term memory or may reflect an alteration in the general speed of an "internal clock" in the brain.^{16, 35, 73, 161, 202}

It has been frequently reported that PCP is much more likely than other LSD-like drugs to produce feelings of isolation and apathy in users. The disturbance in sensory input produced by PCP is considered by some investigators to resemble sensory deprivation, and is quite distinct from the general sensory effects of LSD.^{78, 194, 212}

There is some controversy regarding the extent to which LSD and related drugs produce hallucinations. This question is primarily a problem of semantics. There are many definitions of the word hallucination, and there is little agreement in scientific circles regarding its specific delineation. Some investigators would subsume under the general label of hallucinations the various alterations in visual perception and other sensory changes described above. Others have suggested that some of these effects might better be called illusions, and still others feel that neither term is appropriate and that these phenomena should be considered, in a broader context, as altered states of consciousness and perceptual awareness. Many investigators restrict the use of the word hallucination to false sensory impressions which are believed to be real by the person experiencing them. In this sense, LSD and related drugs rarely produce hallucinations, since subjects are almost always aware that the perceptual changes are due to the drug and, typically, do not attribute to them significant independent existential reality.^{61, 66, 127}

Contentions are often made that LSD can elicit new levels of spontaneity, insight, problem-solving and creativity. These claims are very difficult to assess scientifically, since the effects described are often highly subjective and personal, and are hardly amenable to empirical validation. The problems of studying creativity in the laboratory are considerable, and little is known of the basic psychology of such cognitive processes. A generally agreed upon definition of the concept of creativity has eluded investigators so far, and few meaningful tests are available. Studies of the effects of psychedelic drugs on allegedly creativity-related interests and behaviours have produced inconsistent results.^{36, 116, 145, 206, 289, 301, 327} Often performance does not reflect the subjective impressions of the drug experience. Sophisticated scientific investigation in this area is only just beginning, and the question of subtle effects on creative processes in certain individuals must be answered by future research.

Current arguments as to whether LSD is truly 'consciousness expanding' as its proponents contend or 'consciousness constricting' as its opponents assert, will probably not be resolved by science in the near future, since it seems unlikely that such hypotheses can be put to adequate empirical test given the current state of technology.

Most authorities agree that LSD does not have a specific aphrodisiac or sex-drive stimulating effect. Some users indicate an enhanced appreciation of sexual experience, while many others report a total disinterest in sex while on a 'trip'. Some increase in sexual behaviour may occur as a result of a lessening of inhibitions and an increase in emotionality, tactile appreciation, and interpersonal contact. LSD has been used in the treatment of sexual disorders of psychological origin (e.g., frigidity and impotence), although its general usefulness has not been clearly demonstrated in this area.

The possible religious significance of psychedelic drug experiences has been the subject of heated controversy for centuries. While many authorities have pointed out basic similarities between drug-induced feelings of transcendental or mystical awareness and the *satori* or *kensho* of Zen Buddhism, the *samadhi* of Hinduism or the *beatific vision* of Christianity, others have been outraged by the suggestion that such 'instant mysticism' could be produced chemically. It is quite apparent, however, that a considerable degree of religiosity pervaded the psychedelic drug movement of the 1960s and has played a major role in the use of such drugs in other cultures. The major theoretical positions and scientific research in this area have been reviewed by several investigators and these reports provide experimental support for the notion that drug-evoked experiences may have religious significance for certain individuals.^{11, 202, 279}

Perhaps the most rigorous scientific evidence comes from Pahnke's controlled psilocybin experiment with seminary graduate students, conducted in the setting of a Good Friday religious service.²³² He notes that: "Those subjects who received psilocybin experienced phenomena which were indistinguishable from, if not identical with, the categories defined by our typology of mysticism." The religious aspects of the psychedelic experience apparently depend a great deal on the individual, his values and expectations, and the setting involved, and do not normally occur with great intensity in most persons or in most situations. Masters and Houston report that 6 out of 206 of their subjects attained a mystical experience,²⁶² while other researchers report no such events and still others, a much higher incidence. Differences in semantic meaning, definition and criteria may account for part of these discrepancies. The "objective validity" of drug-elicited religious experiences, however, is by nature untestable in the scientific sense, and the area will doubtless remain in a storm of controversy.

Adverse Psychological Reactions [1]

As noted in A.1 *Introduction* the term *adverse reaction*, as traditionally applied to the medical use of drugs, refers to significant undesirable or nega-

tive side effects of the drug. The distinction between main or desired effects and the multitude of other side effects which the drug may have is not absolute in any sense, and the application of these terms generally depends on the conditions of drug use. In the medical use of drugs, the desired and undesired effects are relatively easy to define in a specific treatment context, although the labels may change with the aims of the therapy.

In the area of the non-medical use of drugs, defining adverse reactions becomes considerably more complicated. With hallucinogens, for example, personal and social attitudes and norms often dominate in the interpretation of drug effects.¹⁰⁸ What may be a desirable or pleasurable effect to one individual in a certain situation may be considered an adverse response or a side effect in another situation or to another individual. In a survey of physicians regarding adverse reactions to LSD, one respondent stated, "From my understanding of the effects, I would consider *all* reactions to LSD as 'adverse' regardless of the immediate subjective response."³⁰⁷ Clearly, not all LSD users or other observers share this opinion. As Bialos indicated, in discussing some of the difficulties with defining marijuana adverse reactions:

. . . drug users, the non-drug user friend, the professional clinical observer, the researcher, the law enforcement official, and the middle-aged, middle-class citizen may all have different criteria for defining the syndrome.³⁷

Tart has proposed two criteria for selecting what he believes would be unequivocally negative effects:²⁹³

- (1) the effect is clearly unpleasant to the user;
- (2) it has no redeeming value, other than as a possible lesson to the user.

While most observers might agree in principle with the approach, considerable conflict among individuals would undoubtedly arise in the application of these criteria in many practical situations. Even if agreement were reached as to whether a particular drug-associated condition is positive or negative, determining cause and effect relationships can be a formidable task. It is often very difficult to isolate the alleged effects of LSD from the possible influence of cannabis, since LSD users are almost invariably users of marijuana and hashish as well. Other drugs are also involved in many cases where possible chronic effects are a major issue.

In spite of these ambiguities, a number of rather specific concerns have developed regarding possible adverse psychological reactions to hallucinogenic drugs. Some of these alleged effects include acute adverse reactions such as depression, anxiety, panic or psychotic-like, short-term responses; augmentation of pre-existing neuroses, character disorders and adjustment problems; functional psychoses, in which drugs might serve as a precipitating or complicating factor; long-term changes in personality, behaviour or life style associated with chronic use (for example, the so-called "amotivational

syndrome"); specific psychoses or dementia of a chronic nature caused primarily by the drug; and "flashbacks" or recurrences of previous drug effects.

In the past decade there have been numerous clinical reports of adverse psychological reactions to hallucinogen use in North America. The majority of these reports display considerable methodological problems which impose severe limits on their usefulness. Pre-drug personality, cause and effect relationships, and details of both the general patient group and the overall catchment population from which the subjects were drawn are rarely adequately explored and presented. Some well-documented reports have appeared, however, and certain recurring patterns are becoming apparent.

An LSD-induced 'bad trip' is typically a self-limiting reaction of short duration, lasting only a few hours. Although much more prolonged responses sometimes occur it may range from a mildly negative or ambivalent experience to an episode of intense terror and nightmarish panic. Such adverse reactions often seem to focus on the fear of death, fear of permanent insanity, basic sexual conflicts, and fear of legal repercussions in illicit users, or may be precipitated by an objective 'hassle' or problem of real or imagined significance. Under the influence of LSD, it is often difficult to cope with immediate problems which arise, and emotional vulnerability may be increased. 'Bad trips' seem to occur most often when the individual has had little experience with hallucinogenic drugs, is poorly prepared, alone, or in an otherwise unprotected or unsupervised setting. While an experienced 'guide' or therapist can often help prevent or alleviate negative reactions, this is no guarantee against an unpleasant experience. Neither are earlier positive experiences—severe 'bad trips' have been noted in individuals who had previous long histories of unequivocally pleasant psychedelic experiences.

Illicit users of LSD commonly voice the opinion that 'bad trips' are caused by bad drugs and that 'pure acid' is relatively free from adverse reactions. These claims are rarely based on chemical analysis. Although contaminants and other drugs occasionally found in illicit market LSD can undoubtedly affect the experience, it seems unlikely that a large proportion of the negative reactions reported can be accounted for by adulterants. It is well-documented that 'freak-outs' do sometimes occur with pure LSD.

Becker has proposed an explanation for the occurrence of anxiety reactions to hallucinogenic drugs, which is gaining considerable support.^{29, 30, 31} Hallucinogenic drugs produce effects which are qualitatively different from those a non-user is likely to expect or have experienced before. In many instances, it is the interpretation or meaning which the user attaches to these radically different experiences which determine the subsequent emotional response. Effects which are considered tolerable or even interesting or pleasurable to experienced users, may be frightening to a novice, who may fear a permanent derangement of his mind. Hallucinogens sometimes produce transient waves of mild anxiety or paranoia, which the regular user usually correctly attributes to the drug and has learned to control. These

same effects may convince the novice that he is insane and bring on a severe panic. The response of others to this fear is of great importance—if they are not alarmed, and reassure him that the effects are not unusual or permanent, the anxiety reaction may be minimized. On the other hand, non-users, including some police and medical personnel, may react with alarm, and reinforce the notion that the person is at least temporarily insane (psychotic), thereby adding to his distress. Becker's hypothesis predicts that as familiarity with the acute effects of hallucinogens in our culture increases, the frequency of short-term panic reactions among users will decrease.

The frequency of suicide among LSD users is not known, but a few cases have been documented. Suicidal thoughts have often been reported, but there is little indication that such notions are carried through. Some data on suicides among persons who have taken LSD in medical settings are discussed later. Attempts at self-mutilation have been reported on rare occasions. Accidental deaths associated with hallucinogen use have been reported and a number of fatalities or serious injuries have been noted as a result of a loss of critical judgment or attentional processes. For example, a few individuals have jumped from buildings or trees apparently under the delusion that they could fly or were indestructible.^{63, 127, 259, 272} Stories of persons who had become permanently blind while staring at the sun during LSD trips were generated by a state official in the United States and widely circulated in the public media. These reports were subsequently shown to be a hoax and no such cases are on record.²²⁴

Fear, panic and aggression may result from a 'freak-out', but homicides associated with LSD use are rare and only a few have been documented.^{167, 238} Reports of violence resulting from the use of LSD have generally not been supported,⁸⁹ although there may be some significant exceptions. The majority of non-drug arrests associated with LSD use in Canada seem to be on the order of "disturbance of the peace" offences^{251, 252} and there is little evidence that LSD plays a significant role in major crimes.

Recurrence of certain aspects of hallucinogen experiences ("flashbacks" or "echos") of varying duration and intensity have been reported over periods ranging from a few months to more than a year after the last (or only) LSD use.^{118, 249, 272, 305} The quality of these experiences, which usually last only a few minutes or less, may depend on as many factors as the original effects. They may be triggered or precipitated by drug-associated stimuli which were previously associated with drug experiences, by seemingly irrelevant stimuli or events, by other drugs, or they may appear spontaneously.

According to Keeler and associates the recurrence of a drug-like effect (or "flashback") is not necessarily an adverse reaction and should be classified as such only if it precipitates anxiety or interferes with function.¹⁶⁰ "Spontaneous recurrences are tolerated by some and enjoyed by others." They note that the recurrence of clinical psychopathology that was present during the drug reaction is not a spontaneous recurrence of the drug effect.

Discrete recurrences may be on a continuum with more subtle effects of drug use. For example, some subjects claim that their perceptual awareness was increased by hallucinogen use and that some degree of this enhancement remained with them after use. Perhaps also related is the 'contact high'—the experience reported by some users of feeling somewhat 'high' without the drug when in the presence of others who were 'high'. Although these various post-intoxication responses may be in some respects related psychologically and physiologically, in most situations they cannot be considered the same phenomena. The lack of clear agreement as to essential definitions in these areas prevents simple interpretation of the very limited data available. Definitions of "flashbacks" or "spontaneous recurrences" rarely accompany clinical reports in the literature.

There is little agreement regarding the frequency of these ill-defined recurring phenomena. In a recent survey of metropolitan Toronto high school students, 60% of LSD users reported experiencing "flashbacks" of some kind.²⁷⁴ Of students who had used the drug 21 times or more in the past six months, almost three-quarters reported such recurring experiences. In contrast, other surveys report that about one-quarter of LSD users have had "flashbacks".^{42, 290} Horowitz estimated that approximately 5% of repeated hallucinogen users have experienced "repeated intrusions of frightening images" in spite of volitional efforts to avoid them.¹³⁵ Studies of persons who have been given LSD under medically controlled settings have rarely found evidence of significant adverse recurrences.^{65, 74, 121, 204} It is likely that these various studies are examining different phenomena and comparisons among them seem rather meaningless. Further research is needed, applying more rigorous definitions.

A number of clinical reports have appeared which suggest that the chronic use of hallucinogens may be causally associated with a variety of psychological problems of a more prolonged nature than the generally accepted acute reactions. Although most negative LSD experiences appear to be of short duration, prolonged psychotic episodes lasting months or even years have reportedly been elicited by LSD. Many investigators contend that such extreme experiences occur only in individuals already predisposed to psychotic reaction, and are simply precipitated by the stress of a 'bad trip'. In most of the cases described, considerable prior psychopathology existed, although this is reportedly not always the case, and there are numerous reports of significant adverse psychological effects in individuals without obvious previous pathology.^{68, 69, 104, 120, 220, 259, 272, 307}

A number of clinicians have described an "amotivational syndrome" in some chronic users of cannabis, LSD and other hallucinogens. McGlothlin and West report that clinical impressions suggest that heavy use of these drugs may contribute to some characteristic personality changes, including apathy, loss of effectiveness, reduced drive and ambition, diminished capacity or willingness to carry out complex long-term plans, to endure frustration, to follow routines or to successfully master new material.²⁰⁹ David Smith

has described a similar condition in a small proportion of chronic users, "The picture in terms of social consequences is then similar to that of a chronic alcoholic, but without the physical deterioration."²⁷⁸

While an association between heavy hallucinogen use and an "amotivational" behaviour pattern in some persons is generally acknowledged, the complexity of untangling any causal relationship between the use of drugs and the general life style has resulted in considerable controversy regarding the essential etiology of the syndrome. The role of drugs in such cases may often be more symbolic than pharmacological. Some investigators have suggested a definite organic basis. Unwin contends that "the so-called amotivational syndrome" may in most cases be a "masked depression".³⁰⁹ Lecker felt that such a syndrome might represent an "operant conditioning state" during which the chronic user aims at the quickest way to get pleasure, and may revert more and more to the drug for instant gratification.¹⁸² McGlothlin has suggested that drug use by persons appearing "amotivational" was perhaps continued and intensified when the drug effects were compatible with the users' natural personality characteristics and preferred life style. He indicated that separating the various social, psychological and pharmacological components would be an arduous task.

In contrast to reports of adverse personality change with hallucinogenic drugs, numerous claims have been made by various LSD users, psychotherapists and scientists that LSD can produce long-lasting beneficial effects on personality and behaviour. Both types of allegation are difficult to evaluate, since few adequately controlled investigations have been done on the long-term effects of either medically supervised or non-medical LSD use. Experimental data suggests that in most subjects, long-lasting effects (beneficial or harmful) of LSD administered under controlled conditions are minimal.^{204, 206} Less information is available on non-medical use. It would appear, however, that under some circumstances LSD can potentiate or facilitate attitude and behaviour change, the nature of which is strongly influenced by suggestion, expectation and other aspects of the set and setting, as well as the personality of the individual involved. The degree to which any personality or behaviour change is viewed as beneficial or adverse depends on personal and social attitudes and norms. What is considered positive by some individuals or groups may be viewed negatively by others. Additional research is needed regarding the psychological effects of chronic hallucinogen use—especially in adolescents. Concern has frequently been expressed regarding the effects of regular hallucinogenic drug use on the maturation process in young people, but little systematic data are available.

Some observers warn that chronic hallucinogen use may cause prolonged disruption of cognitive functioning and school performance. While users of LSD and related drugs have been shown in several studies to have poorer academic records than non-users, this general pattern typically holds for all drugs including alcohol and tobacco, and is likely not a pharmacological effect.^{15, 88, 107, 273, 274, 275, 318, 321}

Prolonged psychoses are quite rare in clinical or experimental settings, even when psychiatric patients are used as subjects. In 1959 Cohen surveyed 44 investigators who had given LSD or mescaline to approximately 5,000 persons a total of about 25,000 times.⁶⁵ He found that psychotic reactions lasting over 48 hours occurred in 0.18% of the psychiatric patients studied and 0.08% of the experimental subjects. Only a few "flashbacks" were noted. There were four suicides among the patients, all occurring months after the LSD experience, and none among the experimental subjects. Whether these deaths can be attributed to LSD use is not certain.

In 1970 Malleon surveyed 73 doctors known to have used LSD on human subjects in the United Kingdom.²⁰⁰ The data covered some 4,300 patients given a total of 49,000 LSD sessions, and 170 non-patient experimental subjects administered LSD on 450 occasions. There was a reported suicide rate of 0.07%, and a rate of 0.9% for psychoses lasting for more than 48 hours. The investigator concluded that:

... treatment with LSD does give rise to acute adverse reactions, but if there is adequate psychiatric supervision and proper conditions for its administration the incidence of such reactions is not great.²⁰⁰

In 1971 the Commission conducted a survey of researchers who had administered LSD (or mescaline or psilocybin) in clinical or experimental settings in Canada over the preceding 20 years.¹²² Twenty-four of the 29 investigators surveyed responded and of these, data from 18 research teams were adequate for the following analysis. A total of 3,515 individuals had been administered LSD alone or in combination with other drugs on 5,398 occasions. The vast majority of these subjects were psychiatric patients and were receiving the drug as part of a program of psychotherapy. Sixteen severe psychotic reactions were reported to have occurred in conjunction with LSD treatment (0.3% of drug sessions). The majority of the psychotic reactions lasted for several hours or less, but a few were more prolonged. Three occurred during the year following LSD treatment, and in one case a psychotic reaction lasting almost a year was precipitated three weeks after LSD was administered. Only a few "flashbacks" were noted. Six possible suicides (three confirmed) were reported in patients within a period of two years after LSD sessions. The role of the drug treatment in these deaths was not certain. As with the Cohen and Malleon studies, it is not clear whether the suicide rates found in these patients after LSD treatment were lower or higher than in comparable patients not given such treatment.

McGlothlin and Arnold conducted a ten-year follow-up study of persons who had been given LSD in a controlled medical setting.²⁰⁴ Some of these individuals also had some non-medical hallucinogen experience. Twenty-five per cent of 247 respondents had experienced a 'bad trip' at one time or another. Almost half of those reporting having had at least one unpleasant experience, viewed them as beneficial in retrospect. Few serious problems were associated with LSD experience.

It would appear, on the basis of these studies, that adverse reaction to LSD is not a prohibitive danger when the drug is administered in a controlled clinical setting. Many other investigators have also indicated that the experimental use of LSD in a medical setting is comparatively safe from a psychiatric point of view.^{74, 127, 185} There is no evidence that clinical research with LSD or pharmacologically similar compounds should be restricted for reasons of subject safety. These findings do not provide a satisfactory basis for estimating the effects of illicit use, however, since set, setting, purity and quantity of drug, and consequently, the quality of the experience are all apt to be quite different in these situations.

There are no adequate data regarding the frequency with which various unpleasant or adverse effects occur in the illicit hallucinogen-using population as a whole. These various possible negative effects are rarely clearly defined in studies, but it would appear that a large proportion of regular hallucinogen users have experienced unpleasant effects of some kind. Very little is known regarding the incidence of the more severe reactions or 'freak-outs'.

In a recent survey of Toronto high school students, 53% of LSD users reported that they had experienced unpleasant effects or a 'bad trip' of some kind. Few reported more than one or two such experiences. As would be expected heavy users reported having had a greater number of unpleasant experiences.²⁷⁴ Solursh reported that 24 'freak-outs' occurred out of 601 'acid trips' in a series of illicit users studied retrospectively.²⁸⁵ In the Commission's national surveys, approximately one-fifth of the respondents who reported that they had quit or decreased LSD use indicated having had a bad experience as a reason for this change in drug use.^{174, 175, 176}

Smart and Fejer of the Addiction Research Foundation have examined the relationship between non-medical drug use and experience in psychotherapy among high school students in a semi-rural area of Ontario.⁸⁷ For all drugs (including alcohol and tobacco) significantly more users than non-users had received treatment for psychological problems. Non-users who had received treatment noted family or school problems most frequently as the reason for treatment. Users of illicit drugs most often gave depression as the reason for therapy. It is difficult to ascertain the role of hallucinogen use in these data since the incidence of psychotherapy generally increases with age, as does drug use. The investigators point out that age differences may be a confounding factor in the correlation between drug use and treatment. As well, we do not know whether the treatment preceded or followed hallucinogen use.

In a study of Harvard seniors, Walters and associates found more visits to a psychiatrist among those students who were users of hallucinogenic drugs. However, in half of these cases, the individuals were not users at the time they saw the psychotherapist. Few felt that drug use was related to their seeking psychiatric help.³¹⁸ Similarly, a study of adults in the San Francisco area found that hallucinogen use was more common among those who had seen a professional psychotherapist.¹⁵⁴

A number of surveys of clinicians and treatment services have been reported. As noted in A.1 *Introduction* the interpretation of such studies is generally quite difficult.

In spite of various methodological problems, it is apparent from these surveys that a significant number of adverse reactions to hallucinogens come to the attention of medical authorities.^{115, 215, 223, 226, 307} Since most cases of adverse reaction are probably not brought to medical attention, accurate diagnostic and treatment statistics must be considered underestimates of the overall incidence of the less severe conditions. In any event, drug-related cases must ultimately be interpreted in terms of the overall patient population, and more importantly, in terms of the extent and patterns of drug use in the general population from which the patients were drawn.

The statistics collected by the Federal Poison Control Program provide some general information regarding adverse reactions and poisonings attributed to LSD and related drugs.^{48, 169, [f]} However, it is generally not possible to distinguish between psychological adverse reactions and physical toxicity from these reports. Since physical reactions to LSD requiring medical treatment are rarely noted in the scientific literature, it is likely that the LSD cases reported are almost entirely psychological 'bad trips' of one sort or another. This may not be the case with MDA or PCP, since these drugs are more likely to produce signs of physical toxicity, which may account for some proportion of any adverse reactions associated with these drugs. For sake of convenience, all of the adverse reaction and poisoning reports are discussed here; physical toxicity and fatalities are dealt with later in the section on physiological effects.

The general increase in the number of hospitals participating in the Poison Control Program from year to year precludes accurate comparisons among the various years, but some interesting relative reporting trends are apparent. (See Table A.3.) The overall number of adverse reaction reports involving hallucinogens is levelling off. The proportion of these cases ascribed to LSD has markedly declined from 1969–1971, as the proportion of cases attributed to MDA, mescaline, and unspecified hallucinogens increased. The specific sub-categories must be interpreted with caution, however. Drug identification in hospital reports involving hallucinogenic drugs is nearly always based on the verbal report of the user, rather than on chemical analysis of the drugs involved, and erroneous classification of such cases frequently occurs. Samples of the drugs taken are not usually available for chemical analysis, and accurate screening for these drugs in body fluids is beyond the capacity of most hospital laboratories.

There has been no mention of adverse reaction to PCP in the Poison Control Program reports. As discussed earlier, PCP is almost invariably represented as some other drug on the illicit market and is rarely acknowledged as PCP. If PCP adverse reactions occur, they would likely be mistakenly attributed to other drugs, or left unspecified. Although alleged 'mescaline'

TABLE A.3

LSD AND OTHER PSYCHEDELIC-HALLUCINOGENS NOTED IN THE POISON CONTROL PROGRAM STATISTICS

	1969*	1970*	1971†
LSD.....	390 (93.5%)	885 (77.2%)	799 (62.2%)
MDA.....	7 (1.6%)	53 (4.6%)	151 (11.7%)
Mescaline.....	15 (3.5%)	57 (4.9%)	105 (8.1%)
STP.....	3 (0.7%)	15 (1.3%)	3 (0.2%)
PCP.....	0 (0.0%)	0 (0.0%)	0 (0.0%)
Psilocybin.....	1 (0.2%)	0 (0.0%)	0 (0.0%)
Unspecified.....	1 (0.2%)	135 (11.7%)	225 (17.5%)
TOTAL:.....	417	1,145	1,283

* *Poison Control Program Statistics*. 1969, 1970. (Table G-II)

† Unpublished information provided to the Commission by E. Napke (Head, Drug Adverse Reaction and Poison Control Section, Department of National Health and Welfare, Ottawa.)

is not uncommon in Canada, as indicated earlier, samples of such materials have almost invariably been found upon chemical analysis to be some other drug—primarily LSD, PCP or both. Consequently, it is likely that most of the 177 'mescaline' cases reported actually represent adverse reactions to LSD and/or PCP. Many of the unspecified cases are probably attributable to these drugs as well.

Overall, males outnumbered females by almost three to one in these data, and the vast majority of the individuals involved were in their teens or early twenties. Of the 1,653 reports where the disposition of the case was specified, 15.6% were hospitalized for treatment and these patients received a median of 1 to 2 days institutional care¹⁶⁹ Less than one-tenth of the hospitalized individuals (1.4% overall) were given more than two weeks of in-patient care. It would appear from these data most adverse reactions to LSD and related drugs are of short duration, not requiring hospital care; long-term hospitalization is uncommon.

In the Commission's national survey of psychiatric hospital diagnostic records, taken in the spring of 1971, LSD and related drugs were mentioned as factors in the primary and secondary diagnoses of 67 (0.3%) and 14 (0.06%) respectively of the 22,885 patients in the hospitals surveyed.^{121, [d]} In British Columbia, psychiatric wards in general hospitals were surveyed as well, and in this population, LSD-like drugs were mentioned in the diagnostic records of 10 (3.3%) of 293 resident psychiatric patients. A follow-up examination of certain specific case histories was done, focussing primarily on cannabis, although other more general information was obtained as well. These case histories revealed that most of the hallucinogen cases had intense involvement with a variety of drugs, the most common being cannabis, alcohol, 'speed' and LSD. In many instances drugs were apparently considered causal factors primarily because of general information that the

patient had been a user, either in the past or at the time of hospital admission. The inclusion of such cases would likely give an inflated estimate of the role of the drugs in psychiatric disorder. On the other hand, many patients have drug-related problems which are not detected in the admitting diagnoses, and can only be identified by intensive subsequent exploration.¹⁶² Consequently, diagnostic record sampling is bound to miss certain valid drug-related cases. Almost half of the patients in the follow-up study had been diagnosed schizophrenic at some time, and a high proportion of personality problems and adolescent adjustment difficulties were also noted. In many cases, these problems preceded hallucinogenic drug use. (See also Table A.7 in the Annex to this appendix.)

In the 1970 national mental health data provided to the Commission by Statistics Canada, 226 (0.44%) of the first admissions and 71 (0.14%) of the readmissions to psychiatric wards and institutions were attributed to drug dependence involving LSD and related hallucinogens (ICD-304.7).^{51, 243, [e]} For 1971 the corresponding figures were 142 (0.26%) and 62 (0.12%) for first admissions and readmissions respectively. The apparent reduction in hallucinogen cases is striking; however, only limited between-year comparisons can be made with the available data. Some additional toxic reactions to these drugs are undoubtedly included in other undifferentiated general diagnostic categories (e.g., ICD-294.3, 309.1⁴⁹). In the available data, males outnumbered females by approximately three to one. (See also Tables A.5 and A.6 in the Annex to this appendix.)

The Commission psychiatric hospital survey and the national mental health statistics can only provide a general picture regarding the extent to which these drugs are involved in hospital admissions. Detailed follow-up of individual cases would be necessary to ascertain the nature of the role of the drugs in these patients.

While the psychiatric hospital statistics do not allow firm conclusions regarding the causal role of the drugs in the cases described, the data indicate, however, that hallucinogens do appear as a complicating factor in a significant number of psychiatric admissions in Canada. However, such cases apparently represent a very small proportion of hallucinogen users in general, and of the psychiatric hospital patient population in particular.

In studying psychiatric patient populations we have *a priori* defined the group under study as pathological. Consequently, only limited information can be gained from tabulating the pathology within such groups. Such studies provide little information regarding the frequency of adverse reactions in the general population of hallucinogen users. Few controlled studies exist of hallucinogen users who were selected on some non-pathological or non-deviant basis. It would be preferable to compare a cross-sectional sample of hallucinogen users with a control group of non-users with similar social, economic, and educational backgrounds. Even this type of investigation can only demonstrate factors which are associated with drug use and cannot indicate causality.

Although good epidemiological data are lacking, many observers feel that the frequency of psychopathology in the chronic hallucinogen-using population is higher than would be expected by chance. If this were true, at least three reasonable explanatory hypotheses might be adequate, each with some supporting evidence:

- (1) Pathological persons may be more likely to use hallucinogens (or to use them heavily). This might, for example, represent acting-out or rebellious behaviour, attempted self-treatment, poor judgment, or an inability to find pleasure by other means.
- (2) Hallucinogen use may lead to an increased incidence of psychopathology. This could be a direct neurological effect, or, for example, the drug might conceivably precipitate or complicate a schizophrenic reaction in a predisposed person.
- (3) Other factors may influence both psychopathology and drug use. Social alienation, adverse socio-economic conditions, or poor family environment might play such a role.

In summary, mild transient phases of anxiety and paranoia occur in some inexperienced and regular users of hallucinogens in North America. More severe panic reactions, especially among inexperienced users have been reliably reported. The notion that LSD and related drugs may, under certain circumstances, precipitate a more prolonged psychotic reaction in predisposed individuals is gaining some support in the clinical literature, although there is no consensus as to the exact nature of the predisposition or its prevalence in the general population. Other more prolonged adverse psychological reactions to chronic use (including personality changes and an "amotivational syndrome"), in some instances in apparently previously normal individuals, have been cited, but there is considerable controversy as to the validity and general applicability of many of the clinical reports presented. It is not yet certain what role the drugs play in such chronic syndromes or the frequency with which they occur in the hallucinogen-using population. Additional epidemiological research will be necessary to clarify these issues. (Further discussion of theoretical and methodological issues relevant to hallucinogen adverse reactions appears in Chapter Two of the *Cannabis Report*.⁴⁸)

PHYSIOLOGICAL EFFECTS

LSD exerts its most significant physiological effects on and through the central nervous system, although the exact mechanisms by which this occurs are not yet known. As a result of its potent general arousal or activation capacity, LSD may produce a variety of autonomic nervous system (sympathomimetic) actions, generally considered to be of little clinical significance at normal doses. Commonly noted are minor increases in heart rate, blood pressure, blood sugar level, body temperature and perspiration. Chills, 'goose pimples', flushing of the facial skin, decreased or increased urination,

headache, nausea and, more rarely, vomiting are reported. Nausea is more common with peyote than with LSD. LSD may produce a variety of changes in the visual system, including widening of the pupils, some disturbance of focussing and accommodation, an increase in intra-ocular pressure, and certain direct effects on the retina. It would appear that the profound changes in visual perception which typically occur reflect a combination of peripheral (perhaps retinal) and central neural mechanisms. LSD and most of the related drugs generally increase the activation of the brain (as indicated by the EEG), produce alertness, block sleep, decrease appetite, change respiratory patterns, facilitate certain simple reflexes, and may induce tremors and reduce coordination. A few rare cases of convulsions have been reported.^{21, 25, 27, 67, 131, 141, 142, 195, 255} Cold extremities are sometimes reported with LSD and are likely due in part to constriction of the blood vessels in the skin. There have been occasional rumours of gangrene in the extremities allegedly caused by the use of poorly synthesized illicit LSD (thought to contain other physiologically active ergot alkaloids). We have been unable to substantiate these rumours, but one case of gangrene was recently reported in which LSD and large doses of nicotine (a potent vasoconstrictor) were implicated.¹³⁹

Considering their close structural similarity with amphetamine, it is surprising that MDA and STP produce little amphetamine-like peripheral physiological change. Pupillary dilation is the only conspicuous effect of MDA at low doses. Larger doses may produce increased perspiration, dry mouth, tension, tremors, dizziness, indigestion and occasionally nausea. Appetite is usually suppressed. Amphetamine-like central stimulation and EEG changes occur.^{12, 100, 134} Although the literature is inconsistent regarding the physiological effects of STP, it would appear to be similar to, but more potent than MDA in most respects.^{85, 96, 281}

At moderate doses, PCP produces physiological effects similar to alcohol or barbiturate intoxication. Larger doses are increasingly anesthetic, but very high doses produce convulsions. Moderate doses typically result in numbness in the extremities, an increase in blood pressure, heart rate, perspiration and salivation, and dilation of the peripheral blood vessels in the skin. Unlike most LSD-like drugs, PCP produces a slowing of the EEG, generally decreases arousal, and does not affect pupil size. Muscular incoordination, ataxia, blurred vision, minor changes in involuntary eye movement, and dizziness are often reported. Nausea and vomiting may occur.^{24, 78, 79, 127, 234}

There is no direct evidence of generalized brain damage due to the chronic use of LSD and related drugs, but indications of impairment on some behavioural tests have been reported which are suggestive of slight neurological dysfunction in certain LSD users.^{28, 39, 70, 205, 326} The evidence is not consistent in this regard, and further research is needed. There are no data available on the neurological consequences of long-term use of MDA or PCP in humans, but existing animal studies do not indicate cause for concern at moderate doses.^{78, 134, 234}

Chromosome and Birth Effects

A few years ago, considerable controversy and sensational publicity arose around the possibility that LSD might affect hereditary transmission through chromosomal alterations, produce changes in white blood cells resembling leukemia, or adversely affect the developing human fetus.^{60, 147, 155} Related studies, involving test-tube preparations of human cells, live animal and insect experiments, and examinations of illicit drug users, are contradictory and provide no final answers to these important questions.^{25, 81, 101, 136} The relationship between *in vitro* (test-tube) and *in vivo* (living organism) effects is rarely straightforward, and generalizations from one animal species to another are difficult. Furthermore, studying the users of 'street' drugs gives little information regarding specific compounds, since such individuals typically use a variety of drugs, and neither the investigator nor the subject can be sure of the purity, quantity or identity of substances obtained from the illicit market. In controlled human studies, in which chromosomes were examined before and after clinically supervised administration of known doses of pure LSD, little evidence of significant change was noted.^{8, 72, 137, 300} The effects of prolonged frequent use of LSD have not been directly investigated in the laboratory, however, and the presence or absence of chromosomal alterations with heavy use of illicit materials can not be predicted on the basis of present information.

Research on chromosome changes is complicated by the fact that temporary or permanent chromosome breakage is not an uncommon response to a variety of non-drug experiences, and can be produced by nuclear radioactivity, x-rays, many pollutants, fever and a number of virus infections. Furthermore, there is evidence that a number of commonly used drugs, including caffeine and aspirin, may cause chromosome breaks in certain cells.^{158, 262, 292, 323} It should be noted that chromosome damage *per se* does not necessarily affect either the individual or his offspring, although the possibility must be considered. There is considerable controversy regarding the frequency of occurrence of various chromosomal abnormalities in the general population.²⁷¹

High doses of LSD administered at certain times early in pregnancy have been shown to produce deformities in the offspring of some animal species but not others.^{10, 17, 84, 102, 250, 311, 317} No unequivocal evidence of such teratogenic LSD effects in humans has been reported, although there have been a number of widely publicized instances of early abortion or abnormalities in babies born of mothers who had used LSD.^{40, 43, 52, 82, 147, 148, 300} Whether such anomalies occur more frequently in LSD users than in similar or matched non-users is uncertain.^{2, 208, 291}

Recent reviews of the literature suggest that LSD does not cause lasting chromosome breaks *in vivo* and that it does not produce cancer or birth deformities in humans.^{17, 76, 99, 192} However, many investigators still feel that the possibility of chromosome or fetal damage in humans forbids the use

of LSD and related drugs, for either medical or non-medical purposes, by women who are either pregnant or expect to become so in the near future.

Physical Toxicity and Death

Human fatalities due directly to LSD overdose are unknown in the scientific literature. In terms of lethal physical toxicity LSD must be considered one of the safest drugs known. Mention of psilocybin or mescaline deaths in the literature is rare, as well. We have found no evidence of overdose deaths involving these drugs in Canada.^{123, 271, [8]}

Little data is available on the lethal toxicity of PCP in humans. There is no evidence in the scientific literature or from the Commission's studies of drug-related deaths that severe PCP overdose is a likely occurrence. We have not been able to document any such fatalities in Canada.²¹⁷ No PCP poisonings have been recorded as such in the Federal Poison Control Program statistics.⁴⁸ However, as noted earlier this may represent drug identification and classification errors rather than a lack of toxicity, since, in Canada, PCP is almost invariably sold as some other drug on the illicit market. While similar misidentification of drugs may exist in death records, such an error is less likely to occur since greater care is normally taken to chemically identify drugs in fatal cases. However, even in these latter instances, screening for drugs is usually not extensive or complete.²¹⁷

The toxicity of MDA has been studied in animals, but little information is available regarding lethal levels in humans.^{57, 134, 240} Because of the close chemical and pharmacological similarities between MDA, mescaline and the amphetamines, and the rarity of overdose deaths with these latter compounds, it would seem reasonable to expect a similar lack of fatalities associated with MDA. Animal studies suggest that MDA and amphetamine have comparable lethal toxicity.¹² Correspondingly, until recently, MDA overdose deaths were not mentioned in the literature. The Commission's survey of provincial coroners has provided information on 18 MDA-related deaths in Canada during the years 1969–1972.¹²³ (Five of these cases have been described by Cimbura.⁵⁷) Eight of the 18 cases involved other drugs as well, but in the remainder, MDA was the only drug found in the body. In several cases samples of the drug taken were available for analysis and were found to be relatively pure MDA, without significant adulteration or contamination. The majority of the fatalities involved oral use, although evidence of intravenous administration was noted in some instances. The actual mechanism of death was generally uncertain. Although the actual doses involved cannot be accurately determined, the coroners' reports noted a range from "one capsule" as a minimum, up to 60 capsules in one instance, and one-quarter ounce in another. It would appear that in most cases massive doses were involved. Sixteen of the individuals were males, and all were between 15 and 34 years of age.

Because of classification ambiguities, it is not possible to obtain information on MDA-specific fatalities from the death statistics published by Statistics Canada.⁵⁰ As noted earlier, the Federal Poison Control Program has reported 151 cases of MDA toxic reaction poisonings in 1971, but in most instances it is not possible to determine to what extent these cases represent psychological adverse reactions or physical toxicity.²²¹ However, five of the MDA-related poisonings were fatal; three of these cases involved opiate narcotics as well. Very recently there have been several reports of deaths attributed at least in part to PMA (paramethoxyamphetamine) in Canada and the United States.

MDA is unique in that it appears to be the only one of the common psychedelic-hallucinogen or stimulant drugs which seems to involve a significant risk of fatal overdose as these drugs are presently used in Canada. Further research is needed to determine what combination of behavioural and pharmacological factors are involved in this unexpected phenomenon.

TOLERANCE AND DEPENDENCE

Tolerance to the psychological and physiological effects of LSD develops rapidly on repeated use, although the form of psychological tolerance is unusual in several respects. Tolerance to most drugs can be overcome to a certain extent by simply increasing dosage. With LSD, often a period of several days must separate 'trips' if the full effects are to be obtained, regardless of dose.^{141, 143} A second unusual quality of LSD tolerance is the rapidity with which it develops and dissipates. A reduction in intensity of the effects occurs after only a few consecutive administrations⁵ and tolerance is lost within a few days of last use. Furthermore, when LSD is used intermittently many users report a 'reverse tolerance', or increased sensitivity to the drug and may, after experience, require less of it to achieve the desired effects. These factors suggest that the pharmacological mechanisms underlying LSD tolerance are quite different from those seen with most other psychoactive drugs. Cross-tolerance exists between LSD and some related drugs, and an individual who has recently taken LSD will generally show a reduced response to mescaline and psilocybin, but not to PCP or cannabis.^{23, 144, 324}

Physical dependence does not develop to LSD, even in cases in which the drug has been used more than two hundred times in a single year.⁶⁹ Psychological dependence has been reported to occur in certain individuals who become preoccupied with the drug experience and feel emotionally depressed and unsatisfied without it. Normally, however, LSD use is intermittent and periods of weeks or months may separate 'trips' in even confirmed users. Chronic frequent use is very rare.

Because of the general sedative properties of PCP, some degree of tolerance and physical dependence might be expected with daily use, but little human data is available. There is evidence that tolerance develops to

some of the effects of STP.¹³³ Similar effects apparently occur with MDA. There is no data available regarding physical dependence on MDA or STP, but an amphetamine-like rebound response might be expected with these drugs after repeated use. The typical patterns of occasional or intermittent use of LSD-like drugs makes the development of physical dependence highly unlikely under most conditions.

HALLUCINOGENS AND OTHER DRUGS

Amphetamine is reported to intensify, prolong or otherwise alter the experience produced by LSD and related drugs. Chemical analysis of illicit drug samples suggests that such mixtures are not often used, however. LSD and PCP often appear in combination in illicit samples, yet little is known as to how these drugs interact in humans. They produce opposite effects on many physiological functions, and animal studies indicate that LSD and PCP are antagonistic in some respects.⁷⁸ Further research into LSD-PCP interaction is needed.

The psychological effects of LSD, MDA and most related drugs are reduced significantly by chlorpromazine (Largactil®), a phenothiazine major tranquilizer, and to lesser degrees by barbiturates, minor tranquilizers and other sedatives. In rare instances phenothiazines may potentiate the LSD response. Niacin, niacinamide, succinate and glucose have also been reported to reduce some of the effects of LSD.^{64, 127, 153, 260} There are no confirmed antagonists of PCP, but there is some suggestion in the literature that certain psychological effects may be reduced by succinate, and that PCP sedation may be blocked by amphetamine.^{79, 237}

When STP first appeared on the illicit market in California, toxic effects were reportedly potentiated by chlorpromazine given in treatment of adverse reactions. This gave rise to widespread warnings against the use of chlorpromazine in treating 'bad trips'.²⁷⁷ However, in subsequent laboratory studies involving chemically pure DOM, chlorpromazine clearly did not accentuate the effects of DOM, but lessened them to some degree.^{133, 281} However, the interaction of chlorpromazine and DOM over a wide dosage range has not been explored. It has been suggested that the unidentified drugs originally responsible for the alleged STP-chlorpromazine potentiation were actually atropine-like compounds rather than, or in addition to, DOM.

Antibodies to LSD and certain related drugs have been developed, in part for use in immunoassay techniques for the detection of drugs in body fluid and tissue.^{72, 312} Recently, such antibodies were shown to reduce the response to LSD in an animal study—thus demonstrating the possibility of immunization against hallucinogenic drug effects.³¹³

Users of LSD typically also use a variety of other psychotropic drugs. Almost all LSD users have smoked cannabis, but only a minority of persons who have tried cannabis have also taken LSD. Heavy cannabis users are more likely to have tried LSD than are occasional users. A significant pro-

portion of young users of speed or opiate narcotics also report previous use of LSD and related drugs. LSD is apparently not very popular among regular heroin or speed users, however.^{56, 108, 174, 175, 176, 207, 253, 274} (See also Appendix C *Extent and Patterns of Drug Use*.)

A.6 ALCOHOL

INTRODUCTION

Alcohol is one of the most widely used psychoactive drugs known to man; it has apparently been with us since the dawn of civilization. Breweries flourished in Egypt almost six thousand years ago, and there is evidence that Stone Age prehistoric man made alcoholic beverages long before that.^{14, 283} The Roman philosopher Seneca, in an essay on alcohol, observed almost 2,000 years ago that "Drunkenness is nothing but a condition of insanity purposely assumed."²⁶⁴ Varying degrees of alcohol use have appeared in most societies throughout recorded history and have traditionally played an important symbolic as well as pharmacological role in many social, religious and medical practices. Just as the use of alcohol has been almost universal, so, apparently, has its misuse. Consequently some degree of opposition to 'drink' appears to have arisen in all indulging cultures, although attempts to eradicate its use have met with almost uniform lack of success.

What is this drug which has been hailed as the "water of life" and "nectar of the gods" by some, and damned by others as "second only to war" as a source of human problems? Ethyl alcohol (C_2H_5OH) is a colourless, flammable and volatile liquid made up of three common elements, carbon, hydrogen and oxygen. The word "alcohol" is commonly taken to mean *ethyl alcohol* or *ethanol* (common beverage alcohol), even though there are a vast number of other substances in the aliphatic alcohol family, many of which are highly toxic in even low doses. Methyl alcohol (wood alcohol) and isopropyl alcohol (rubbing alcohol) are common examples of such toxic substances. Unless otherwise specified, in this report the word "alcohol" is taken to mean ethyl alcohol or ethanol.

Although the technique of producing alcoholic beverages by fermenting fruit, grain, vegetables, and other food-stuffs has been known for the past few thousand years, the biologic process by which the drug is generated was first illuminated by Louis Pasteur in the middle of the 19th century. His investigations revealed that alcohol is produced by single-celled microscopic plants (yeast fungi), which break down certain sugars by metabolic combustion, releasing carbon dioxide (CO_2) and ethyl alcohol as by-products. The production of CO_2 is responsible for the head on a glass of beer, the popping of champagne corks, and the leavening effect of yeast in the rising of bread. Since yeast cannot digest starch, mash from cereal grains such as barley, rye, corn and rice must be malted (i.e., converted to maltose

sugar) prior to fermentation in the production of beer, gin, whisky and other alcoholic beverages.

Under optimal conditions fermentation continues until the sugar supply is exhausted. However, as the amount of alcohol in the fermenting solution increases, the metabolic activity of the yeast is slowed and arrested, and the fungi are killed when the alcohol they produce reaches a level of about 14%. Thus a limit is set on the maximum strength of natural (undistilled) beverages such as beer, wine and cider. The distillation process of boiling off and isolating the more volatile alcohol from the other fluids (mostly water) allows a further increase in ethanol concentration. Although this technique was used in Middle Eastern cultures centuries earlier, the production of 'spirits' by distillation has been known in Europe for less than seven hundred years. Today, alcohol can be produced synthetically.

The pharmacological effects of alcoholic beverages are attributable primarily to the quantity of alcohol they contain. In Canada, beer usually contains about 5% alcohol by volume, natural wine 7% to 14%, fortified wine up to 20%, and distilled spirits or liquor approximately 40% alcohol. In other words, a 12-ounce bottle of beer or 3 to 4 ounces of wine contain about as much alcohol as 1½ ounces of whisky. In the alcohol literature a distinction has frequently been made among beverages on the basis of potency, with more serious consequences often attributed to the use of distilled liquor than to the consumption of weaker drinks such as beer or wine. However, certain studies, including some Commission research, suggest that even though acute toxic reactions may occur more frequently with distilled spirits, the long-term effects of chronic alcohol use are primarily related to the total alcohol consumed, rather than to the form or potency of the individual drinks.^{89, 151, 222, 279} Further research in this area is clearly needed.

In addition to ethanol and water, alcoholic beverages frequently contain small quantities of substances collectively referred to as *congeners*. Typical congeners include methanol, higher alcohols (fusel oil), acids, esters, aldehydes and other organic and inorganic compounds. Some of the congeners are important to the flavour and aroma of alcoholic beverages. There is evidence that they also can contribute to certain effects including post-intoxication 'hangover'. After pure ethyl alcohol and water (e.g., *Alcool*) which has essentially no congeners, vodka has the second lowest congener content of all alcoholic beverages. At equivalent doses of alcohol, after-effects with these beverages are less severe than those produced by drinks with more congeners, such as brandy.^{43, 64, 202, 215}

The notion of alcohol 'proof' originated centuries ago from a crude but effective analytic technique designed to assess the strength of spirits. If gun powder soaked with the beverage exploded on ignition, this was taken as 'proof' that the liquor was more than half alcohol. 'Proof spirit' in the United Kingdom and Canada contains about 57% alcohol, while in the United States proof is calculated as twice the percentage of alcohol per unit volume of the beverage (e.g., 80 proof whisky is 40% alcohol).⁷⁴

Canada has experimented with alcohol prohibition in varying ways since 1878. Although there are currently some 'dry' localities, alcohol is generally legally available to adults across the country. Over 300 years ago the prohibition of liquor sales to Indians was Canada's first alcohol regulation.²⁰ Some residual discriminatory policies have only recently been eliminated.

In the United States there was a 15-year period of alcohol prohibition which ended in 1934. Although alcohol consumption and certain related social problems and physiological disorders (such as cirrhosis of the liver) decreased during "prohibition", the program was repealed, apparently because of the unworkable form of the laws, inadequate enforcement, corruption among public authorities and, perhaps most importantly, a general lack of public support. During that period, the elimination of legitimate alcohol outlets resulted in home breweries and distilleries, the production of 'bootleg' liquor, the use of toxic substitutes, smuggling (frequently from Canada), and an economic vacuum which was rapidly filled by organized crime. Many authorities feel that this multi-million dollar illicit market provided the initial capital for the emergence of a network of syndicated criminal and quasi-legal business empires which have considerable economic and political strength in North America today.

Alcohol is now used by approximately three-quarters of the Canadian population over the age of 18. (See Appendix C *Extent and Patterns of Drug Use*.) Although most alcohol is undoubtedly consumed for its pharmacological properties, there is a significant aspect of alcohol usage which is in some respects independent of direct drug effects. There are many longstanding customs, traditions and superstitions which pervade alcohol use in the Western world. Because it has become an integral part of our culture, the set and setting surrounding alcohol use is substantially different from that associated with the non-medical use of other drugs in Canada.

Drinking alcoholic beverages may have special meanings in various social contexts. Depending on the type and quantity of beverage consumed, alcohol use is often symbolically associated with the acknowledgement of birth, death, marriage and other contracts, adulthood, friendship, and, to some, it may imply virility or masculinity, affluence and cultural refinement (or the opposite). Although it is employed in some religious ceremonies, in other contexts many individuals may approach its use with moral apprehensions and feelings of ambivalence and guilt. Some reject it outright on principle, while others feel that moderate use is morally acceptable. In many social circles abstinence is frowned upon and 'teetotallers' are looked upon with suspicion. But alcohol intoxication is frequently tolerated, condoned, and even expected and encouraged in many situations in North American society. When one considers the fact that these various attitudes interact with the diverse pharmacological potentials of alcohol in determining the overall drug effect, the complexity of the psychopharmacology of alcohol

becomes apparent. Because its use is so ingrained at all levels of society, many Canadians do not consider alcohol a drug.

In a wider context Jaffe observed in *The Pharmacological Basis of Therapeutics*:

The large role that the production and consumption of alcoholic beverages plays in the economic and social life in Western society should not permit us to minimize the fact that alcoholism is a more significant problem than all other forms of drug abuse combined.¹²⁶

MEDICAL USE

Alcohol is currently recognized as an official drug in the British and U.S. Pharmacopeias, although the various alcoholic beverages, as such, are no longer listed for medical use. Alcohol has been cited over the past few thousand years as a cure for nearly every ailment or disease. Most of the medical benefits were probably indirect, if not more imagined than real, and although it still plays a useful role in medicine, many of alcohol's legitimate therapeutic functions have now been filled by more effective drugs.

Alcohol is often used as a preservative, solvent, and vehicle for other drugs, and is contained in tinctures, elixirs, spirits and many medicinal syrups. External applications are used to cleanse, disinfect and harden the skin, to reduce bed sores, to cool fever, and to decrease sweating (alcohol is included in many antiperspirant deodorants). In concentrations around 70%, alcohol is an effective anti-bacterial agent, although it is not satisfactory for disinfecting open wounds since it damages the raw tissue.^{74, 237} Alcohol is sometimes injected in the vicinity of nerves to temporarily or permanently block transmission and relieve certain types of pain. Concentrated alcohol may be administered orally in the treatment of fainting, and alcoholic beverages are sometimes used to stimulate appetite and digestion. Alcohol is also sometimes employed as a source of calories and may be administered orally or intravenously in such applications.

Alcohol is still sometimes recommended as a tranquilizer, sedative, or hypnotic and may also serve as a mild mood elevator for some individuals. Used alone it has not been considered a safe surgical anesthetic, since the dose necessary to produce unconsciousness is often dangerously close to the fatal level. However, the use of alcohol, particularly in conjunction with other anesthetic drugs, is being re-evaluated.^{59, 60} In addition, alcohol may reduce pain at moderate doses. Alcohol is still used in household medicine to "treat" the common cold, although its benefits, if any, are probably limited to an improvement in mood and increased relaxation and rest.

CHEMICAL ANALYSIS OF ILLICIT SAMPLES IN CANADA

Most of the alcohol consumed illicitly in Canada comes originally from licensed brewers and distributors. However, thousands of gallons of liquor

are illicitly manufactured and consumed in Canada annually. In some instances considerable effort is made to imitate or counterfeit popular brands, and bottles are often prepared complete with bogus labels and Liquor Board stamps.^{30, 35} (See also Appendix B.6 *Sources and Distribution of Alcohol*.)

Among the contaminants which have been identified in illicit alcohol are calcium and copper salts, hydrocarbon oils, vegetable debris, dead insects, animal feces and urine. These materials arise from uncontrolled and usually unsanitary conditions, including easy access for insects and rodents, the use of dirty vessels, hard or unclean water, and abnormally high acid content in the brewing mash. Lead from old radiators used as condensers in stills is occasionally found in illicit alcohol. Deliberate additives include sugar, soft drinks, various flavouring and colouring matter, and glycerol. Toxic quantities of methyl alcohol are sometimes added inadvertently (blindness and death may result from such adulteration). Illicit alcohol is typically diluted with water and the strength of such spirits is highly variable, with approximate limits of 30–160 proof.^{87, 111, 115, 243}

ADMINISTRATION, ABSORPTION, DISTRIBUTION AND PHYSIOLOGICAL FATE

Alcohol is usually taken orally and is rapidly and completely absorbed in the gastrointestinal tract. Some absorption takes place in the stomach, although diffusion into the blood stream is typically most rapid from the upper intestine; consequently, the quicker the alcohol passes through the stomach, the shorter its latency of action and the higher the peak blood alcohol level achieved.^{74, 237} Alcohol in beer or sweet wine is absorbed more slowly than that in equivalent quantities of dry wine or diluted or full strength distilled spirit. Therefore, they result in a lower peak effect than the latter beverages.^{112, 292} Food eaten before or with alcohol tends to decrease the drug effect by slowing stomach emptying, and a meal before drinking alcohol may reduce the peak alcohol level in the blood by almost one-half compared to that attained by drinking with the stomach empty. Once absorbed, alcohol is distributed quite uniformly in all body fluids; it easily enters the brain, and in pregnant women, crosses the placental barrier into the fetus.³⁰⁵

Approximately 95% of the alcohol entering the body is broken down by oxidation and the rest is excreted unchanged, primarily in the urine and breath. Much smaller quantities of alcohol can be detected in sweat, saliva, tears, milk and other body secretions.²³⁷ Unlike many drugs, alcohol is metabolized at a relatively constant rate on a given drinking occasion. The rate of alcohol elimination is roughly proportional to body weight, with the average 150-pound man metabolizing about 9 ml (0.3 oz.) of pure alcohol per hour.^{74, 305} On various occasions there can be significant differences in the rate at which an individual metabolizes alcohol. Substantial differences in metabolism rates between individuals are frequently observed. Genetic factors are often significant. Differences in response to alcohol among various ethnic

and racial groups have been linked to differences in rates of metabolism at various stages in the biotransformation of alcohol.^{68, 231, 313}

While certain alcoholic beverages, such as beer, contain very small amounts of protein and carbohydrates, alcohol itself provides only calories when metabolized, but no vitamins, minerals, protein or essential fatty acids needed for adequate nutrition. Depending on the form of alcoholic beverage and possible mixers, an ordinary drink may contain 90 to 150 calories or more. Thus, as little as two 12-ounce servings of beer may make up 10% of the daily caloric needs of a 160-pound individual, and a 25-ounce bottle of 40% distilled spirits may supply over 50% of the needed calories.^{82, 156, 292}

A convenient index of the quantity of the drug in the body (and the intensity of the short-term effects) is the *blood alcohol level* (b.a.l.), represented in per cent alcohol per unit weight of blood. Since the amount of alcohol excreted in the breath bears a fixed relationship to that in the blood, it is possible to estimate the blood alcohol level from expired air. This principle is utilized in the *Breathalyzer* tests now employed in the enforcement of driving laws.^{18, 74, 274, 293} A variety of other related techniques are also available for rapid estimation of blood alcohol level.¹⁶⁵ Standard methods of chemical analysis have been developed for the direct determination of alcohol levels in body fluid and tissue.^{46, 126, 127, 278}

SHORT-TERM EFFECTS

Alcohol exerts its primary acute effects through the central nervous system, producing a general sedation or depression of neural activity over a wide dosage range, although in certain circumstances, behavioural and psychological stimulation may result. Little is known as to the specific mechanism by which alcohol produces its psychopharmacological effects. However, in a general sense, alcohol is believed to exert its sedating effects by inhibiting areas of the brain stem reticular formation which control sleep and wakefulness. Behavioural and psychological arousal effects are thought to be related, at least in part, to the release of certain brain areas (including the cortex) from inhibition by the reticular formation. Areas of the brain called the limbic system and the hypothalamus are involved in the neurological basis of mood and emotion; but since the operation of these systems is not at all well understood, it is not possible to speculate how alcohol (or any other drug) might affect them.^{136, 139}

As with most drugs, certain effects of alcohol depend to a large extent on the individual and the situation in which the drinking occurs. A drink or two may produce drowsiness and lethargy in some instances while the same quantity might lead to increased activity and psychological arousal in another individual, or in the same person in different circumstances. Furthermore, a dose which is initially subjectively stimulating may later produce sedation.^{206, 226, 237}

In many social settings, alcohol seems to result in a lessening of inhibitions, and in feelings of well-being, sociability and camaraderie in most individuals. For many people alcohol relieves tension and anxiety—the common notion that one ‘needs a drink’ when worried, irritated or upset, reflects a general acknowledgement of this function. Although alcohol usually elevates mood at first, a general lack of emotional control, including anxiety, withdrawal, self-pity and general depression may occur later or with higher doses.

Hostility and aggression are not at all uncommon in some drinkers, and fights and other forms of violent antisocial behaviour are often reported to accompany bouts of heavy drinking. There is evidence that persons with certain pre-existing psychiatric or neurological disturbances are more likely than others to become aggressive or violent when intoxicated.^{116, 201, 220, 312} Although delusions, illusions and amnesic ‘black-outs’ may occur with high doses in some individuals, acute alcohol psychosis (pathological intoxication) in normally moderate drinkers is rare.^{98, 130, 247, 280}

Alcohol does not have a specific aphrodisiac (sex-drive stimulating) effect *per se*, although the emotionality and general lessening of inhibitions often induced may lead to an increase in sexual activity and other normally restricted behaviour. An increase in desire or opportunity may be countered by acute sexual impotence or difficulty achieving orgasm.^{237, 266, 292}

In moderate amounts, alcohol may increase or decrease heart rate, produce a ‘flushing’ or dilation of small blood vessels in the skin (giving a sensation of warmth), lower body temperature, stimulate appetite and the secretion of saliva and gastric juices, increase urination, produce a slowing of the electroencephalogram (EEG), increase complex reaction time, and may reduce muscular coordination. The swelling of the minor blood vessels in the eye (conjunctival congestion) may give a ‘blood-shot’ appearance.^{6, 74, 237, 306} Alcohol has been reported to narrow the visual field, reduce sensitivity to brightness contrast, and increase the time required for the eye to adjust to darkness,^{158, 197, 248} but other investigators have not found such effects.

Alcohol generally reduces performance on tests of a wide variety of psychological functions. Tasks requiring a high degree of selective or divided attention are particularly sensitive to alcohol effects,^{195, 196} and impairment is usually most pronounced on complex and recently learned tasks.^{37, 74, 132} However, a small amount of alcohol may actually improve performance in some situations.²⁹³ The frequently observed impairment of psychomotor performance with moderate doses of alcohol (e.g., 0.04% blood alcohol level) was confirmed in Commission experiments.^{58, 164, 196, 233, 234, 293}

In high doses, alcohol produces drunkenness with disorientation and confusion, slurred speech, blurred vision, inadequate muscular control and, often, nausea and vomiting. As larger quantities are ingested, depression of respiration, general anesthesia and unconsciousness and, rarely, death due to respiratory and circulatory failure occur.^{74, 169, 237}

Heavy alcohol use is often followed by pronounced 'hangover' symptoms characterized by nausea, fatigue and weakness, dizziness, poor coordination, headache, 'heartburn' and a variety of other aches and pains. Anxiety, guilt and depression may also occur. The number and intensity of these symptoms tend to increase in proportion to the quantity of alcohol drunk.^{43, 96} Some authorities consider this post-inebriation phase a form of acute withdrawal syndrome.

A number of factors have been shown to influence appetite for alcohol in different species, including age, sex, and various physiological, nutritional and pharmacological variables.²⁶¹ Electrical stimulation and specific lesions in certain parts of the brain have been shown to affect alcohol intake and effects in animals.^{5, 154, 174} Changes in alcohol self-administration may be mediated by the modification of neurological reactions which reinforce drug use.

Many studies have shown that the use of alcohol is negatively correlated with academic performance in high school and university.^{272, 308, 309} Heavy or frequent users of alcohol almost invariably have poorer grades than light users or abstainers. While chronic heavy use might have direct effects contributing to this correlation, non-pharmacological factors are thought to be primarily responsible. Similar findings have been reported for most other drugs, and it would appear that certain attitudes and life styles influence both drug use and academic performance.

DRIVING

In moderate to large doses alcohol adversely affects many of the functions thought to be important in automobile driving. In addition, to detrimental effects on various perceptual, attentional, cognitive and psychomotor skills, alcohol may increase risk taking and aggression in driving.^{47, 162, 284} Commission experimental research has replicated the frequent finding that alcohol in quantities commonly consumed in Canada (0.07% blood alcohol level) reduces driving performance.^{13, 48, 105, 189}

In 1904, data linking alcohol consumption to automobile crashes was published in an editorial in the *Quarterly Journal of Inebriety*.²²⁷ Since then, a considerable amount of evidence has been accumulated which continues to point to alcohol as a major contributing factor in such accidents. A 1969 study of alcohol involvement in fatal motor vehicle accidents in three Canadian provinces presented findings similar to those reported regularly across North America: approximately 70% of drivers killed in single vehicle accidents and 50% of drivers killed in multi-vehicle collisions had been drinking. Among all driver fatalities, alcohol was detected in the blood of 60 to 70% of those considered responsible for their own deaths.²⁶ The majority of such alcohol-related fatalities involve drivers with blood alcohol levels above 0.08%; a much smaller fraction of other drivers on the road at a comparable time show blood alcohol levels of such a magnitude.^{17, 166} In other words, many of

the fatal crashes are caused by a small but distinguishable group of drivers, namely those with blood alcohol levels above about 0.08%.

Although more than half of the adult population in North America at some time drive automobiles after drinking, alcoholics, primarily men, account for a disproportionate number of highway fatalities, even when corrections are made for driving exposure.^{253, 293, 302} Numerous factors including failure to use seat belts, greater susceptibility to death due to trauma, and possible suicide attempts may contribute to this relationship.^{86, 287} Another group which accounts for a disproportionate number of highway deaths, often involving high blood alcohol levels, are young adult males (roughly between the ages of 15 and 24).^{26, 216} However, evidence indicates that all age groups contribute to the traffic safety problem, particularly after heavy drinking.^{17, 293}

The relationship between blood alcohol level and non-fatal automobile accidents has not been extensively studied, partly because drivers involved in such accidents may not consent to being tested for alcohol. Nevertheless, evidence indicates that blood alcohol levels at or above 0.10% are seen in approximately one-quarter of the serious but non-fatal crashes; for various reasons these figures are considered to be underestimates.^{17, 113} Thus, the overall trend is quite consistent—significant quantities of alcohol are frequently found in drivers (and, incidently, in about 50% of their passengers) involved in fatal single-vehicle crashes, fatal multiple-vehicle crashes, and non-fatal serious crashes, compared to drivers not involved in accidents. On the average, the likelihood of such crashes begins to accelerate at blood alcohol levels of about 0.08–0.10%; above that the chance of an accident increases rapidly as a function of the alcohol level in the blood.^{17, 119, 166}

Alcohol has also been found to be a contributing factor in pedestrian fatalities;¹⁰⁰ in the Canadian study cited above, more than half the pedestrians killed were shown to have been recently drinking.²⁶ Alcohol is also a significant correlate of fatal aviation crashes, and it has also been cited as a contributing factor in rail crashes and home and industrial accidents.^{22, 54, 100, 107, 159, 293}

Although the intensity of the acute effects of alcohol can, to a certain extent, be estimated from the amount of alcohol in the blood, the relationship between the blood alcohol level and the effects produced may vary considerably from individual to individual. Federal legislation prohibits driving with blood alcohol level greater than 0.08%. This concentration may be produced by three or four ordinary drinks, if consumed in a short time. While certain individuals might be capable of driving satisfactorily with this much of the drug, most persons perform less skillfully at even lower levels.^{105, 189} Although the *Breathalyzer* can be used to predict the immediate effects of alcohol, there are no simple methods of detecting a 'hangover', and there are indications that this post-inebriation phase can have adverse effects on psychomotor performance and driving.

Recent reviews of the broad area of drugs and traffic safety have concluded that alcohol is a major factor contributing to highway crashes and fatalities. There is little evidence that other drugs are presently significant factors in comparison.^{145, 208, 269, 303} According to Statistics Canada data, almost a half million automobile accidents were reported in this country in 1971; of these, there were 4,670 fatal accidents (resulting in 5,573 deaths), 192,599 traffic injuries and 358,883 property damage accidents.²²⁹ Existing information suggests that alcohol was involved in a large proportion of these occurrences, although Canadian data are not available to allow an accurate estimate of the precise number which could be attributed to alcohol intoxication.²⁷⁶ It has been estimated that alcohol-related mishaps account for 30% of the severe injuries and at least 50% of the deaths from traffic accidents in the United States.^{211, 293, 299} The Canadian situation is probably not drastically different.

LONG-TERM EFFECTS

Many authorities differentiate between 'low-risk' (moderate) and 'high-risk' (heavy) drinking in discussing the long-term effects of alcohol. For most otherwise normal individuals, moderate drinking over a prolonged period of time may produce little apparent psychological or physiological change. However, high-risk or heavy drinking (e.g., an average of five or more drinks a day) frequently leads to a variety of psychological and physiological difficulties, many of which are subsumed under the general terms *alcoholism* or *alcohol dependence*.

There is considerable disagreement among authorities as to the proper delineation of the concept of alcoholism—definitions may be as general as "a family of disorders accompanying chronic heavy drinking" with various social and economic complications, or they may contain more restrictive specifications of physical dependency and addiction, or psychological and physiological harm.^{61, 130} Jellinek has described five different types of alcoholics which differ in degree and kind of psychological, behavioural and physiological involvement.¹³⁰ In some areas of North America, at least 2% to 5% of alcohol users become alcoholics and perhaps twice that many would be considered problem drinkers. The Addiction Research Foundation has estimated that in 1967 there were over 300,000 alcoholics in Canada.¹ The number is undoubtedly substantially higher today.

Only a small minority of alcoholics are 'down and out', 'skid row' variety derelicts; there are many alcohol-dependent persons in all levels of society who function in varying degrees of effectiveness in spite of their high alcohol consumption. Psychological and physiological disorders in these individuals vary considerably as a function of general life style and drinking patterns. Some heavy drinkers show little obvious functional impairment for long periods of time.

Some of the consequences of excessive alcohol use include increased physical and mental health problems, earlier death and a greater likelihood

of incarceration; discussion of these topics will follow directly. In addition, however, there are other consequences of alcohol use which involve not only the user, but others about him, and society in general.¹³⁸ A seemingly endless list of such consequences is possible, although those which are clear liabilities to society are the most frequently enumerated. As examples, heavy alcohol users are frequently cited as being responsible for injuring and killing large numbers of persons in automobile crashes and in acts of violence and aggression. Moreover, the legal handling, incarceration and rehabilitation of such individuals involve costs typically paid for by society as a whole. Alcoholics' increased accident rate adds to the costs of medical and automobile insurance, and their greater need for medical treatment decreases available hospital space and services already in short supply. They are more likely to create problems and misery for their families and their productivity while employed is frequently below par, partly due to their increased absenteeism.²¹⁰

General Physical Health

The physical health of heavy alcohol users is typically poorer than that of the general population.^{86, 156, 237, 252} Some illnesses result from the direct effects of alcohol, or they may involve other factors such as general life style, nutritional deficiencies, heavy use of other drugs (e.g., tobacco or Aspirin®), bodily injury due to accidents and other violent mishaps, inadequate hygiene and rest, over-exposure, overcrowding and other forms of stress.

Chronic heavy alcohol consumption often produces a loss of appetite for food and a disruption of normal digestion, absorption and, perhaps, utilization of essential nutrients. Heavy tobacco use, which is typical of alcoholics, often further reduces appetite. In addition, some alcohol-dependent persons choose to spend their limited funds on alcohol rather than adequately balanced meals. A large proportion of the diet of certain alcoholics is made up of alcoholic beverages (in some cases with weeks or even months with little else) and is thus dangerously low in protein, vitamins, minerals and other important food-stuffs. In addition to producing severe nutritional disorders, such diets may result in increased susceptibility to other diseases and infections.

Several liver diseases are related to heavy alcohol use. Cirrhosis of the liver involves a replacement of functional liver cells with scar tissue. Alcoholic liver cirrhosis is reported to develop after 10 to 15 years of heavy drinking and may lead to death.²⁹² Alcohol itself may be directly responsible for cirrhosis although other alcohol-related factors, particularly nutritional deficiencies, are typically most significant.^{128, 161, 217} A Commission project examining societal factors influencing alcohol dependence in 45 countries replicated and extended the findings of others, showing that the incidence of cirrhosis in certain populations is positively correlated with *per capita* consumption of alcohol.^{151, 230, 242, 258, 286} It has been estimated that 65–90% of the liver cirrhosis in certain parts of North America is attributable to heavy alcohol consumption.^{7, 230} In the United States, alcohol prohibition brought

a marked decline in deaths due to liver cirrhosis, compared to the general mortality rates during the same period.¹⁴⁷ Cirrhosis fatalities rose gradually after prohibition was repealed and alcohol became freely available again. (See Figure A.1.)

Another serious liver impairment associated with alcohol dependence is alcoholic hepatitis; this illness involves inflammation of the liver with accompanying fever, abdominal pain and jaundice.²¹⁸ Other liver complications include a narrowing of the blood vessels serving the liver, and frequently, although apparently of lesser consequence, an increase in deposits of fat in the liver.^{122, 160} Since many drugs are metabolized by the liver, alcohol-related liver damage may result in unusual or prolonged reactions to certain drugs in alcoholics, even when alcohol is not present in the body.

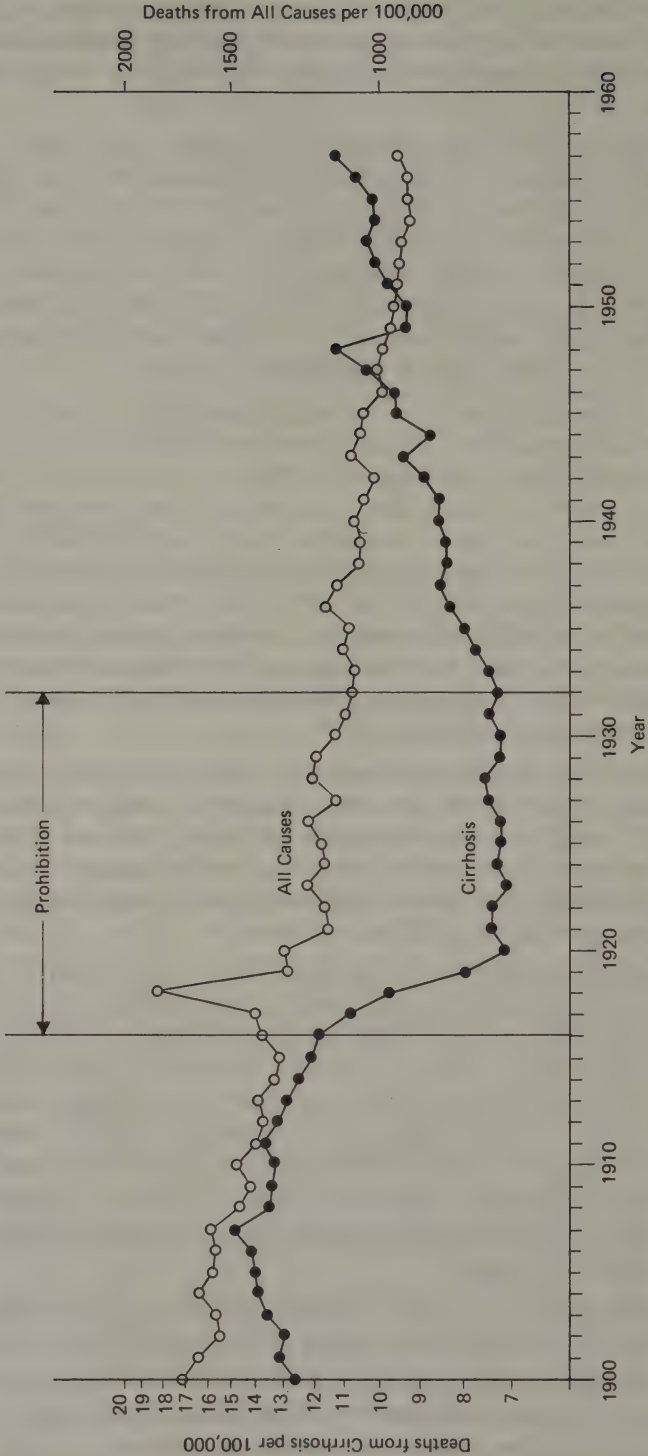
Heart disease is also seen in heavy alcohol users more frequently than in the general population. Although nutritional deficiencies and other factors can add complications, the cumulative effects of chronic alcohol consumption have been shown to impair the functioning of the heart and to result in metabolic and structural abnormalities before any difficulties are noticed by the drinker.^{70, 232} The progression of the disease to produce heart failure, arrhythmias and other problems is not yet fully clarified, since a number of additional factors such as malnutrition, infections, excess trace metals sometimes found in beer, and the chronic use of other drugs such as tobacco may be involved.^{193, 232} Heart disease has frequently been reported as a major cause of death among alcoholics.^{148, 288}

Alcohol can also adversely influence other parts of the circulatory system. In one study blood cells were found to clump together forming a "sludge" in small vessels in the eye which slowed the rate of blood flow in proportion to the blood alcohol level; some vessels ruptured and others were completely blocked. The authors suggested that such effects may adversely affect many organs including the liver and brain.¹⁹⁴

Gastrointestinal difficulties associated with heavy alcohol consumption include chronic gastritis, an undersupply of hydrochloric acid in the stomach, increased incidence of ulcers, and impaired absorption of various substances in the small intestine including thiamine, folic acid, xylose, fat and vitamin B₁₂.^{184, 272} Heavy drinkers are also reported to have higher rates of cancer of the mouth, larynx, pharynx and esophagus; although heavy tobacco smoking is thought to add to the likelihood of some of these cancers, alcohol is also believed to be a significant factor.^{86, 315, 316, 317} Various infectious diseases such as tuberculosis and pneumonia are also more frequently reported in heavy users of alcohol.⁸⁶

Chronic and acute muscle disorders, involving muscle weakness, swelling, cramps and pain, have been related to heavy alcohol use. Both nutritional deficiencies and decreased oxygen to the muscles have been suggested as possible causes of these conditions.^{167, 292} Other diseases associated with alcohol dependence, but due primarily to nutritional deficiencies, include pellagra,

FIGURE A.1
ALCOHOL PROHIBITION RELATED TO DEATH RATES FROM LIVER CIRRHOSIS AND FROM ALL CAUSES IN THE U.S.A.



Source: Klatzkin, G. Alcohol and its relation to liver damage.
Gastroenterology, 1961, 41: 445.

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scurvy, anemia, brain damage and alcohol neuritis.^{184, 202} Alcohol-related neurological disorders are discussed in more detail in a separate section below.

Regular, heavy alcohol use has significant effects on the secretion and metabolism of various hormones in the body, and some authors have suggested that many diseases of alcoholism are secondary to alcohol-induced disruption of endocrine function.⁶⁵ Disorders of the pancreas are frequently noted in alcoholics.²⁴⁹ Low blood sugar and elevated fat content in the blood are also often seen.^{184, 202}

The majority of the illnesses associated with heavy alcohol use improve when alcohol consumption is discontinued and diet and living conditions are improved. Frequently, recovery is near complete, although in some instances permanent damage or disability results.^{156, 222} The general area of alcohol-related fatalities is discussed in more detail in a separate section below.

Adverse Psychological and Neurological Reactions

Heavy alcohol consumption is associated with a variety of psychiatric and neurological disorders. As with other drugs, it is often difficult to differentiate cause and effect in such correlations. Some investigators contend that only those individuals with serious psychiatric disorders become heavily involved in alcohol use, while others might argue from the same data that alcohol is primarily responsible for the pathology observed. In many cases it would appear that both factors are operating with considerable interaction.

In addition to the rather ambiguous but significant role of alcohol complications in various common psychiatric disorders, there are some relatively well defined organic conditions involving brain damage which are attributable directly or indirectly to the effects of chronic high-dose alcohol consumption. While the major psychiatric and neurological disorders associated with chronic alcoholism occur primarily in adults, there is considerable concern over the possible effects of heavy alcohol use on the maturation process in adolescents. Little adequately controlled research is available in this latter area, however.

The neurological complications of alcoholism are usually closely related to nutritional deficiencies which typically accompany chronic heavy alcohol consumption. Deficiencies in the vitamins thiamine, vitamin B₆, nicotinic acid and pantothenic acid are primarily responsible for such disorders of the nervous system,¹⁵⁶ although alcohol can have direct irreversible damaging effects on nerve tissue as well.

Some of the more serious alcohol-related neurological disorders include peripheral neuritis, Korsakoff's psychosis, Wernicke's syndrome, and Jolliffe's encephalopathy. Typical symptoms of alcoholic brain disorders include disorientation, clouding of consciousness, memory failure, hallucinations, rigidity of the limbs, and certain uncontrollable reflexes. Other frequently noted neuro-psychiatric conditions associated with alcohol dependence include

alcoholic hallucinosis, pathological intoxication, delirium tremens and various convulsive disorders or epilepsy complications.

The examination of hospital records provides some epidemiological information regarding the extent of alcohol-related psychiatric problems. As with other drugs however, the reliability and validity of psychiatric diagnoses associated with alcohol-related problems is often not adequate for survey purposes. In many cases, alcoholics may be hospitalized for treatment of their dependence rather than for other specific psychiatric disorders. In any event the number of alcohol-related cases must ultimately be interpreted in terms of the overall patient population, and more importantly, in terms of the extent and patterns of alcohol use in the general population from which the patients were drawn.

In the spring of 1971 the Commission conducted a national survey of the diagnostic records of psychiatric hospitals.¹¹⁰ Although alcohol was of interest to the study, primary focus was on other drugs, and consequently, institutions specializing in the treatment of alcoholism were not included in the sample. Because of the frequency of serious non-neurological physical disorders associated with heavy alcohol consumption, many alcoholics are hospitalized in general hospitals rather than in psychiatric institutions. In spite of our *a priori* exclusion of the majority of alcoholism cases, alcohol was mentioned in the primary or secondary diagnoses of 5.1% of the psychiatric patients in the hospitals surveyed. This figure is three times that reported by the hospitals for all cases with other drug-related diagnoses combined. In British Columbia general hospitals with psychiatric wards were also surveyed. Alcohol was mentioned in the diagnoses of 41 (13.8%) of the 293 patients in the reporting hospitals.^[a]

In the 1971 national mental health data published by Statistics Canada, alcoholic psychosis and alcoholism together accounted for 10,071 (17.5%) of the first admissions and 8,502 (16.5%) of the readmissions to psychiatric wards and institutions in the country.^{34, [e]} The category of alcoholic psychosis includes delirium tremens, Korsakoff's psychosis, other alcoholic hallucinosis, alcoholic paranoia and other or unspecified alcoholic psychoses.³² Alcoholic psychosis was diagnosed in 6.7% of the total alcohol cases. The alcoholism category includes episodic or habitual excessive drinking, alcohol addiction, and other or unspecified alcoholism. Overall, males outnumber females by a ratio of almost six to one in these cases. These data reflect a substantial increase in alcohol admissions from those reported in 1969. However, direct comparison among different years is hampered by the lack of consistency in the number of hospitals reporting from year to year.

Note that the Commission survey and the Statistics Canada data only include cases of alcohol complication of other psychiatric conditions when alcoholism *per se* is presented in the diagnosis. The total impact of alcohol on general neurological and psychiatric admissions is undoubtedly substantially greater than indicated in these data. (See also Tables A.5, A.6 and A.7 in the Annex to this appendix.)

ALCOHOL AND DEATH

Heavy alcohol users as a group have been shown to have a higher mortality rate than persons of similar age in the general population. Studies in various countries have found that alcoholics are more likely than non-alcoholics to die from various accidents, poisoning with other drugs, suicide, homicide and certain diseases such as pneumonia, tuberculosis, liver cirrhosis, gastrointestinal ulcers, heart disorders and some cancers.^{22, 45, 86, 100, 143, 163, 209, 241, 252, 277, 281, 304} Some of this literature has been discussed above.

In reports of violent death, it is often difficult to distinguish between acute or chronic effects of alcohol and various associated personality, social and life style factors. The nature of the relationship between alcohol and suicide is often not clear; alcohol use may be responsible for the suicidal state or in other cases heavy alcohol use might be the result of pre-existing emotional depression. The possible role of 'hangover' depression in suicide has not been clarified.

A study of alcoholics in Ontario found that suicide rates were six times the expected figure.²⁵² In another recent report from Ontario, approximately one-half of the males and one-quarter of the females who purposely injured themselves or attempted suicide were heavy drinkers.¹³⁴ Data from British Columbia indicates that alcohol was associated with more than one-quarter of all attempted suicides.²⁸⁵ Similarly, in an investigation in the U.S. approximately one-quarter of suicide cases involved chronic alcoholics.²⁴¹

The Federal Poison Control Program has reports of 651 ethanol poisonings or adverse reactions for 1971.²⁰⁴ The majority of the poisonings occurred in persons over 25 years of age; approximately one-tenth involved children under 5 years of age. Males outnumbered females in these data by a little over two to one. It was not indicated whether these alcohol poisonings occurred singly or in combination with other drugs. Of those reports where the disposition of the case was specified, 38% resulted in hospitalization, with a median of 4-5 days institutional care. Of 67 drug death reports in which alcohol was mentioned, only 6 (9%) were attributed to alcohol alone; the remainder involved drug interactions, with alcohol and barbiturates being the most frequent fatal drug combination reported to the program. None of the alcohol-related deaths involved children.^[1]

In the national statistics on *Causes of death*, published by the Federal Government, alcohol deaths may be coded under one of several different categories.³³ The following fatalities were reported for 1971:^[m]

Alcoholism	350
Alcoholic psychosis (organic)	26
Alcoholic cirrhosis of the liver	739
Toxic effect (overdose)	10
Interaction with other drugs	204
	<hr/>
Total	1,329

A little over two-thirds of these persons were males and the vast majority were over 40 years of age at the time of death. Alcohol-barbiturate combinations made up more than two-thirds of the drug interaction deaths.

For various reasons, these official mortality figures must be considered gross underestimates of the actual number of alcohol-related fatalities. Cases noted under the general category of alcoholism typically involve known alcoholics who died of some disease, such as pneumonia, heart attack, or gastrointestinal disorder, which was attributed to their chronic heavy alcohol consumption. The ascription of death to alcoholism or to another disease is often arbitrary, and apparently most alcoholic deaths are coded under various specific diseases rather than under alcoholism in death records.^{40, 52, 100, 190, 252}

Canadian data suggest that approximately 65% of all liver cirrhosis deaths might be attributed to chronic heavy alcohol consumption in this country.²³⁰ When this formula is applied to the total number of cirrhosis deaths reported for 1971, an estimate of 1,259 alcoholic cirrhosis fatalities is derived, which is almost double the number officially specified as such.³³

The involvement of alcohol in overdose deaths associated with other drugs is apparently much greater than suggested by the above figures. For example, in a Commission study of coroners' reports of drug-related deaths, alcohol was found on autopsy in 44 (48%) of 92 opiate narcotic cases where toxicological findings were reported.¹⁰⁹ Death had been coded under opiates without mention of alcohol interaction in many instances.^[6]

Dealing with fatalities among heavy alcohol users only, a 1971 report from the Addiction Research Foundation estimated that alcoholism in Canada contributed at least 6,000 deaths annually in excess of the expected mortality.²⁵¹ We have no accurate epidemiological information on the total number of deaths (among alcohol users and non-users) in Canada due to suicide, homicide or various accidents in which alcohol played a significant role. Existing data indicate that the number of such fatalities which could be attributed to the acute or chronic effects of alcohol would be substantial.

ALCOHOL AND CRIME¹¹⁶

Of all drugs used medically or non-medically, alcohol has the strongest and most consistent relationship to crime. In addition to over two and one-half million convictions for offences directly related to alcohol in Canada every year (including drunkenness offences; violations of the liquor control laws, such as operating stills, illegal importation and sales; and drunken and impaired driving) many other crimes are also related to alcohol use.^{1, 224} However, many alcohol-associated criminal acts may not necessarily be attributable to the effects of the drug. For example, compared to non-delinquents, delinquents have been found to drink more frequently, and to report more solitary drinking, more drunken instances and less drinking with the family.^{168, 225} Although drinking may be associated with crime in some such individuals, evidence suggests that alcohol is generally not the cause of

their delinquent behaviour. Instead, illegal alcohol use appears to be part of a general delinquent syndrome involving such acts as joy riding, vandalism, and malicious mischief.¹⁶

To some degree it is possible to predict future alcohol problems on the basis of earlier youthful delinquency. In one study 21% of the individuals who appeared at a psychiatric clinic as children were diagnosed alcoholic 30 years later, compared to only 3% of a group of matched control subjects. Forty-five per cent of the individuals with juvenile court records were subsequently diagnosed alcoholic.²³⁸

Alcohol use is frequently correlated with certain crimes in the chronic drunkenness offender or 'skid-row' alcoholic. Most of the offences committed by such persons are typically minor non-drug offences (such as vagrancy, trespassing and panhandling) which are often related to their lack of funds for food, shelter or more alcohol. Petty theft is an occasional charge, and it has been suggested that in order to "break into jail" temporarily for food and shelter, some individuals may commit some minor disturbance or crime against property.⁷²

There is an abundance of evidence relating alcohol use to more serious crimes. Homicide is strongly correlated with alcohol use. In one frequently cited study in Philadelphia alcohol was present in either the offender or the victim in 64% of the homicides over a five-year period.³¹⁴ In 70% of the alcohol-related cases, alcohol was present in both the offender and the victim, while in only 17% and 14% of the cases had only the offender or the victim, respectively, been drinking. Murders were committed by stabbing, kicking, or beating by fists or with a blunt instrument in 70% of the cases, suggesting that serious alcohol-involved crimes tend to be unpremeditated, physical assault. A study of coroners' cases in Victoria found that out of 41 murder victims tested for alcohol, 19 had a blood alcohol level of over 0.15%.¹⁹ A Canadian study of ex-prisoners concluded that an abnormally high proportion of excessive drinkers had committed crimes against the person, and a lower proportion had committed crimes against property. Excessive drinkers also had a higher proportion of sex crimes.⁵³ A strong relationship between alcohol use and sex crimes such as rape and incest has been demonstrated in many other studies around the world.^{4, 8, 228, 236}

A study of drinking was made in 415 self-referred and 260 court-referred patients to the Winnipeg Psychopathic Hospital between 1956 and 1959.²¹⁹ Drinking histories were as follows:

	<i>Court-referred Patients (N 260)</i>	<i>Self-referred Patients (N 415)</i>
Abstainers	8%	44%
Moderate drinkers	17%	22%
Problem drinkers	40%	11%
Alcoholics	35%	22%

A significantly higher percentage of the psychiatric patients who had been in trouble with the law had drinking problems. Of the court-referred patients, 55 were charged with sex offences, and of these, 54% were problem drinkers and 22% were alcoholics. Homicide was contemplated, attempted or committed by 42 of the court-referred patients, and 95% of these were problem drinkers. Seventy-three per cent of these individuals were intoxicated at the time of the offence. Of 43 patients who had committed theft or forgeries, 70% were problem drinkers.

Persons with alcohol problems constitute a considerable proportion of people imprisoned in Canada for serious offences. Of a total of 4,057 males who were committed to penitentiaries for such offences in 1969, 1,053 (20%) were judged to be problem drinkers and 360 (9%) were alcoholics, making a total of 29% of the admitted male inmates with serious identified drinking problems. Of some selected crimes, alcoholics and problem drinkers were involved in 33% of the murders, 38% of attempted murders, 54% of manslaughters, 39% of rapes, 42% of other sexual offences, and 61% of assaults. Of female admissions for serious crimes, 16 (22%) out of a total of 72 were judged to be problem drinkers.³¹

TOLERANCE AND DEPENDENCE

Tolerance to most of the immediate effects of alcohol develops with frequent heavy use, although it does not occur as rapidly or to the same degree as with opiate narcotics. For example, tolerance to the lethal effects of morphine may be in the order of 25- to 100- fold, while tolerance to the lethal dose of alcohol may only be doubled under comparable dependence conditions.²⁵⁹ Alcohol is more like the barbiturates and other sedative hypnotics in that limited or "incomplete" tolerance develops.^{114, 139} The rate of acquisition and extent of tolerance depends on the pattern of use. Regular heavy drinkers may be able to consume two or three times as much alcohol as a novice. In Western culture, some symbolic masculinity frequently accompanies the development of tolerance and the ability to 'hold one's liquor'.

Most intermittent or moderate drinkers show little tendency to increase dose, although regular heavy drinkers may, in order to obtain the desired psychological effects, ingest quantities which lead to symptoms of chronic alcohol toxicity. A decrease in the sensitivity of the nervous system to alcohol is probably more important than metabolic mechanisms in the development of tolerance.¹³⁹ Learning to function under the influence of alcohol may further reduce some of the acute behavioural effects of intoxication in regular users. As noted above, relatively little tolerance develops to the lethal dose, and acute alcohol poisoning is sometimes noted as a cause of death in alcoholics, although nausea, vomiting and unconsciousness usually prevent self-administration of a fatal overdose. In some alcoholics, tolerance later

seems to decline and a special response or oversensitivity to certain effects of alcohol (pathological intoxication) may develop. In such individuals even a single drink may produce profound loss of control and initiate unrestricted further indulgence. Alcohol-related liver damage may play a role in such phenomena.

Physical dependence on alcohol occurs with the development of tolerance in some long-term heavy drinkers. Although alcoholic hallucinosis, delirium tremens ('DT's'), and convulsions ('rum fits') were noted and studied in the 19th century, only relatively recently was it demonstrated that these symptoms are essentially part of the physical dependence withdrawal syndrome.

Isbell and Mendelson and their associates have clearly demonstrated that even when diet is controlled, a characteristic severe withdrawal syndrome can occur in individuals who had been heavy drinkers, after only a few weeks of continual drinking of large doses of alcohol.^{121, 180} The quantities of alcohol ingested in these studies were considerably greater than those normally consumed. With the usual drinking patterns overt physical dependence may not appear until after years of heavy consumption. Some problem drinkers seem never to become physically dependent on alcohol.¹³⁰

The overall picture of the alcohol abstinence or withdrawal syndrome is generally similar to that associated with barbiturate dependence. As with other drugs, the number and severity of the withdrawal symptoms varies with the quantity of the drug regularly consumed before use was stopped. The abstinence syndrome typically involves loss of appetite, nausea, anxiety, sleeplessness, severe agitation and irritability, confusion, tremors, sweating and, later, cramps, vomiting, illusions and hallucinations. In severe cases, after several days delirium tremens develops and convulsions, exhaustion and cardiovascular collapse may occur. The delirium tremens stage occurs in about 5% of withdrawal cases.¹⁷⁵ Although reports are inconsistent, death may result in 10% of those undergoing severe withdrawal without treatment.⁶ Major recovery in those surviving usually occurs within a week, although certain symptoms continue for a much longer period.^{139, 208} The full blown alcohol or barbiturate type withdrawal syndrome is considerably more dangerous than that of the morphine type, which is rarely if ever fatal.

Psychological dependence on alcohol occurs in many individuals and such dependence is often accepted and tolerated in contemporary North America. A great number of people regularly turn to alcohol for relief or aid prior to or after facing a stressful situation, to escape worries, troubles or boredom, to relax and enjoy a party, or even to sleep, and many feel they do not function as well in certain situations without a drink or two. There is a strong psychological component in the drinking behaviour of the developing alcoholic as his drinking becomes more and more compulsive in spite of the obvious consequences.

ALCOHOL AND OTHER DRUGS

Pharmacological Interaction

The psychological, physiological and biochemical effects of alcohol can be modified by the presence of other drugs; likewise, alcohol can influence the effects of many other substances. Although research regarding drug interactions has been considerably less extensive than that involving the effects of single drugs, knowledge in this important area is increasing at a rapid rate. Because of the prevalence of alcohol consumption in our society, the interaction of alcohol with other drugs used medically and non-medically is of considerable significance.^{76, 78, 292} The preparation of this summary was greatly facilitated by the annotated bibliography on alcohol interactions prepared by Eric Polacsek and associates of the Addiction Research Foundation.²²¹

Barbiturates. The combination of alcohol and barbiturates may result in effects which are greater and longer lasting than that produced by either drug alone. Under certain conditions sedation is potentiated, resulting in a greater effect than that expected by simply adding the reactions produced by each drug when administered alone. Toxic reactions and death can result from doses of alcohol and barbiturate in combination which, administered singly, are well below the lethal range.^{50, 71, 133, 169} The mechanisms for these effects are not yet fully understood, but it has been found that the presence of alcohol in the body can decrease the rate of barbiturate metabolism.¹⁹²

Alcohol and barbiturates also demonstrate cross-tolerance; it has long been recognized that regular heavy users of alcohol have a diminished response to barbiturates, and vice versa. This cross-tolerance appears to be primarily due to changes in the responsiveness of the brain following regular heavy use of either drug.^{114, 139, 192} Thus, heavy alcohol users are less sensitive to barbiturates when taken alone, but become increasingly responsive after consuming alcohol. The development of cross-tolerance does not appear to significantly affect the lethal dose, and large quantities of alcohol and barbiturates taken simultaneously may produce a toxic or fatal reaction, even in individuals with high tolerance to other effects. Alcohol and barbiturates also show a considerable degree of cross-dependence, and barbiturates are frequently used therapeutically to reduce the severity of withdrawal in persons physically dependent on alcohol.

Non-barbiturate sedatives and minor tranquilizers. Alcohol combined with certain non-barbiturate sedatives and minor tranquilizers may, under certain circumstances, produce a more intense and prolonged sedation than is produced by either drug alone, although the literature is not consistent in this respect. In only a few studies have such combinations resulted in a potentiation of effects. Minor tranquilizers such as chlordiazepoxide (Librium®), diazepam (Valium®) and meprobamate (Equanil®) did not increase the sedation produced by alcohol in some investigations.^{38, 60, 78, 140}

Cross-tolerance and cross-dependence have been demonstrated between alcohol and some non-barbiturate sedatives and minor tranquilizers.

Since the minor tranquilizers are frequently used by non-hospitalized patients, some of whom are likely to drink alcohol and drive automobiles, there has been considerable interest in evaluating the effects that these drug combinations might have on skills related to driving. Such interaction studies have included only limited measures of psychomotor, intellectual and perceptual functions, but the results are generally comparable to those investigating general sedation: enhanced impairment has been found with some substances, no effects with others, and, under some conditions, certain of these drugs may reduce the response to alcohol.^{38, 39, 79, 88, 140, 153, 185, 199, 319} Similarly complex interaction may be expected for combinations of alcohol, and certain antihistamine and anticholinergic drugs. Many such substances are available and relatively little human research has been done in this regard.^{62, 117, 265, 300}

Volatile solvents. Volatile solvents are sometimes taken in conjunction with alcohol by certain individuals, who report that some of the subjective effects produced by these drugs are thereby enhanced. Also, alcohol has been shown to augment the adverse effects of the volatile anesthetic, trichloroethylene, on visual-motor performance.⁶⁸ Furthermore, cross-tolerance between alcohol and solvents has been suggested by the frequently reported insensitivity of chronic alcohol users to ether anesthesia.¹⁰⁴

Major tranquilizers. Numerous studies suggest that many of the major tranquilizers, including phenothiazines, thiozanthines, butyrophenones and rauwolfia alkaloids (all of which are used primarily in the treatment of psychosis) may produce an increase in sedation when taken concomitantly with alcohol.^{80, 191} Since many patients receive such medication on an out-patient basis, some researchers have expressed concern regarding automobile driving and social interactions if alcohol is taken concomitantly.^{149, 213}

Anti-depressants. Certain drugs used to treat severe depression (especially the monoamine oxidase inhibitors such as Parnate®) may exaggerate the toxic effects of alcohol and vice versa when the drugs are taken together. The mechanism of such effects is uncertain. Some other anti-depressants, such as imipramine (Trofranil®) and amitriptyline (Elavil®) may also alter the effects of alcohol, but the interaction is not as consistent or pronounced as with the former class of compounds.^{78, 118}

Opiate narcotics. Surprisingly little human research has been done regarding the interaction of alcohol and the opiate narcotics, such as codeine, morphine, heroin and methadone. On the basis of evidence obtained in animal experiments and from studies of death due to overdose of opiate narcotics and alcohol in humans, it is clear that the dose of either of these drugs which produces sedation, toxicity and death is substantially lower when they are used together.^{62, 63, 203, 301}

Alcohol does not exhibit significant cross-tolerance or cross-dependence with the opiate narcotics. However, opiate narcotics can reduce or mask some of the symptoms of alcohol withdrawal or 'hangover'. There is almost no evidence regarding other potentially important psychological and physiological interactions resulting from opiate narcotic and alcohol combinations in humans. This is clearly a high priority research area.

Stimulants. The results of research regarding the interaction of alcohol and stimulants such as caffeine and amphetamine are, in general, complex, conflicting, and incomplete, but it does appear that some of the sedative effects of alcohol can be reduced by certain stimulants. Amphetamines have been reported to reverse the impairment due to alcohol on some, but not all tests involving mental addition and the learning of new material.^{282, 311} In another investigation, amphetamines overcame alcohol-induced changes in certain minor involuntary eye movements.¹¹ However, in a series of studies involving motor skills and verbal performance under stress, amphetamines did not antagonize the detrimental effects of alcohol even when the subjects were fatigued.^{117, 141} Amphetamines have been reported to reduce the gross behavioural signs of alcohol intoxication in alcoholics and to decrease some of the symptoms of 'hangover'.^{23, 186, 235}

Some researchers, but not all, contend that caffeine decreases certain symptoms resulting from high doses of alcohol, including potentially fatal depression of respiration.^{78, 237} With moderate doses of caffeine there may be some transient improvement in feelings of alertness, but caffeine has not been shown to improve psychomotor coordination impaired by alcohol.⁷⁷ Smoking tobacco in combination with alcohol or with alcohol and coffee may enhance the detrimental effects of alcohol on psychomotor coordination.^{124, 208, 215}

Cannabis and hallucinogens. The interaction between alcohol and cannabis has only recently begun to be systematically explored. Cannabis increases certain alcohol effects on behaviour in mice,^{73, 97} but apparently does not affect the lethal toxicity of alcohol.⁶⁹ It has been shown in Commission research and in studies of another group that cannabis and alcohol can have additive effects on certain psychomotor and physiological functions, and that marijuana may intensify the sedative properties of alcohol under some conditions.^{172, 173, 189, 233} On the other hand, the two drugs may have antagonistic effects on some subjective variables such as visual imagery.²³³ In the Commission study, cannabis altered the alcohol effects without changing the rate of alcohol metabolism or disappearance from the blood (as measured by the *Breathalyzer*).

Alcohol interactions with LSD and related drugs have not been systematically explored, but antagonism of certain effects has been reported by illicit users. Alcohol enhancement of the sedative properties of PCP is to be expected.

Non-psychotropic drugs and antagonists. Alcohol may also interact with a number of drugs which have little or no psychotropic effect, or are

rarely used for such purposes. Of primary interest here are substances which may reduce or eliminate the acute effects of alcohol, post-intoxication hangover, or withdrawal symptoms in alcohol-dependent persons. Some other drugs used in conjunction with the medical management of alcoholism are discussed as well.

A substance which could reverse the short-term effects of alcohol would be of considerable practical importance in both medical and social contexts. Unfortunately, at present there is no known pure alcohol antagonist, although a number of substances have been shown to reduce some of the acute effects of alcohol. One report noted that multiple vitamins (B₁, riboflavin, pyridoxine and calcium) can reduce alcohol subjective effects and impairment of reaction time.¹⁴² Diarginine ketoglutarate has been reported to lower blood alcohol levels after drinking, and to reduce alcohol effects on certain psychological and physiological measures.⁴⁴ In one study carbamazepine almost entirely compensated for errors caused by alcohol in a visual field test.²⁵⁷ Intravenous infusions of fructose (a sugar obtained from fruit sources) have recently been reported to increase the rate of alcohol elimination in alcoholics by 25%, thereby presumably resulting in quicker recovery.²⁴ Antacids taken during or after drinking reduce nausea and other gastrointestinal symptoms of alcohol intoxication and hangover.⁹⁶

Mendelson and associates¹⁸¹ recently reported that alcoholics who were given propranolol displayed smaller alcohol-induced decrements in performance than control subjects on assessments of reaction time, hand steadiness, manual dexterity, flexibility of attention, and ability to change perceptual motor sets. Alcohol-induced mood change was reduced as well. The antagonism of alcohol effects in this study was small but consistent. In addition, propranolol has been used to reduce mild alcohol withdrawal symptoms such as trembling, nausea, stomach cramps, and vomiting, and to temporarily reduce craving for alcohol.²⁸⁹ Apomorphine has also been shown to at least temporarily decrease craving for alcohol.²⁵⁰

Disulfiram (Antabuse®) and calcium carbimide (Temposil®) are often used to encourage abstinence in alcoholism therapy. Antabuse® was developed in Denmark in the late 1940s¹⁰² and Temposil® in Canada in the early 1950s.⁶⁷ Both drugs alter the process by which the body metabolizes alcohol, but have little other relevant pharmacological activity. They are sometimes mistakenly discussed as alcohol antagonists. Under normal drinking circumstances ethyl alcohol breaks down into acetaldehyde when it is oxidized in the body. Acetaldehyde is highly toxic but is usually destroyed so quickly that its effects are minimal and rarely noticed. But with the introduction of disulfiram or calcium carbimide, the metabolism of the acetaldehyde is retarded so that intensely unpleasant effects occur (called the acetaldehyde syndrome) which may include nausea and vomiting (and, in severe cases, dangerous cardiovascular effects). A patient given maintenance doses of disulfiram, for example, can not use alcohol without becoming immediately sick.¹⁰³ In order to provide a long-lasting deterrent to drinking, long-acting implantable disul-

firm preparations have been developed which are effective for six to eight months. In one study, 20 of 22 patients achieved total abstinence over a period of 8 months after such treatment, while 11 of 12 non-implant patients returned to drinking within two months following discharge.¹²⁰ Further research with such implants is clearly warranted.

Patterns of Multiple Drug Use

Alcohol is currently used by the majority of the Canadian population. Most of these individuals also use other psychotropic drugs non-medically, with caffeine and nicotine being most frequently mentioned. Heavy users of alcohol are almost invariably heavy tobacco smokers and as noted earlier, this high correlation is a frequent complicating factor in interpreting studies of the physical effects of alcohol.

In general, alcohol users are more likely than abstainers to be users of barbiturates, tranquilizers, opiate narcotics, volatile solvents, amphetamines, cannabis and other hallucinogens, and a variety of other prescription and non-prescription drugs. (See Appendix C *Extent and Patterns of Drug Use*.) Alcoholics are frequently heavy users of other sedative-hypnotics such as barbiturates and minor tranquilizers.^{58, 57} Likewise, heavy users of barbiturates, minor tranquilizers and opiate narcotics generally turn to alcohol if the supply of the preferred drug is restricted. Most opiate narcotic-dependent persons have histories of heavy illicit alcohol use as adolescents.^{240, 275} Alcoholism is one of the most serious problems regularly associated with opiate narcotic dependence, and heavy alcohol consumption is common among many former heroin users and patients in methadone maintenance programs.^{83, 100, 295}

The relationship between cannabis and alcohol use has been the subject of much controversy. Some have suggested that cannabis may be a cure for society's alcohol ills. In general, survey studies indicate that those who use alcohol are much more likely than 'teetotallers' to use cannabis, and that most cannabis users still drink alcohol. In addition, heavy users of cannabis tend to drink more alcohol than light or infrequent users.^{12, 15, 27, 94, 150, 170, 246, 271, 273, 290} However, in a recent survey in Toronto, heavy users of alcohol used less cannabis than more moderate drinkers.²⁷² In a retrospective study of black males in St. Louis, a higher incidence of alcoholism and related problems was found among cannabis users than non-users.²³⁹ However, we have no information from most of these studies as to the effect cannabis had on an individual's drinking behaviour and overall alcohol intake.

Many researchers have mistakenly assumed that cross-sectional survey data indicating a positive *between-subject* correlation of cannabis and alcohol use, at a single point in time, implies a positive relationship between the use of the two drugs within an individual over time, which is the relationship of ultimate interest. This extrapolation is unjustified logically and statistically.⁴¹ Evidence of an association (either positive or negative) between the

use of two drugs in a population at a given time provides little information as to the relationship (if any) between the levels of use of the drugs within the individual members of the group. Changes in behaviour over time, within an individual, must be studied directly. Even then, other secondary data in addition to drug use patterns must be considered in order to determine causal factors.

The bulk of the limited retrospective *within-subject* data now available suggest that cannabis use may reduce or interchange with alcohol consumption to some extent in the user population. In many surveys, including several Commission studies, a substantial proportion of cannabis users claimed that they have significantly reduced their consumption of alcohol or quit it since using cannabis.^{94, 95, 99, 101, 150, 179, 214, 267, 318} There is a reported tendency, with cannabis use, for a greater reduction in the use of hard liquor than of the milder forms of alcohol. The combined consumption of cannabis with wine or beer is common in some social circles. Anecdotally, in certain parts of the United States, alcohol sales in university areas reportedly declined as marijuana use increased, in spite of generally spiralling alcohol sales across the country.²⁰⁷ Also of interest, five fraternities on a mid-western U.S. campus reported that the proportion of social funds spent annually on alcohol had been reduced considerably since marijuana use became common. No indication of alcohol abstinence appeared in these fraternities, however.¹⁸⁷ None of these reports present definite, verifiable evidence of a reduction in alcohol use, so conclusions must be guarded.

Some cannabis users claim that alcohol effects dominate and, for that reason, they refuse to mix the drugs even if they enjoy each one separately. However, in several studies, including Commission experiments, where alcohol and cannabis were given separately or together in low doses under 'blind' conditions, some experienced cannabis users were not particularly proficient at identifying the predominant drug action.^{105, 135, 233} Differentiation is easier at higher doses, however, and alcohol does appear to reduce some of the psychedelic aspects of cannabis.^{55, 233}

Comparing the benefits and harms of alcohol and cannabis has become a popular and engaging activity. Due to the profoundly different social connotations, patterns of use, and scientific knowledge of these drugs, such a comparison must be made on limited and tenuous grounds. As discussed in the Commission's *Cannabis Report*, only a few experiments have been done comparing cannabis and alcohol in humans.^{28, 198} Two such studies were conducted by the Commission.^{105, 189, 233}

It would appear that individuals who actually quit alcohol use because of cannabis constitute a minority of users, and their choice of drugs may have more to do with their particular value systems than with the pharmacological properties of the drugs. The hostile attitude towards alcohol expressed in the past by some cannabis-using youth is clearly not reflected in the majority of cannabis users today. Combined use is becoming increasingly common.⁹³ Systematic prospective studies have not been done, and it is not

clear from the data whether, on a large scale, cannabis would tend to replace alcohol as an intoxicant in the user population, or whether the use of these drugs would be additive without significant interaction, or if the use of one might potentiate or increase the consumption of the other. As measured separately, the use of alcohol and cannabis are both increasing in Canada, especially among young people.^{150, 272} (See also Appendix C *Extent and Patterns of Drug Use* for further discussion of multiple drug use.)

A.7 BARBITURATES

INTRODUCTION

The term 'barbiturate' refers to drugs which are derivatives of barbituric acid (malonylurea). Barbituric acid itself has no significant psychotropic properties, but its derivatives may have a variety of effects on the central nervous system. Certain of those compounds with significant depressant or sedative-hypnotic properties are of primary importance in medical and non-medical use. Many of the short-term subjective effects of the barbiturates are remarkably similar to those of alcohol.

The first drug of this class to be synthesized, barbital (also called barbitone or Veronal®) was introduced to medicine in Germany in 1903.¹³⁴ Barbiturates rapidly gained a common usage as tranquilizers, sedatives, hypnotics (sleep inducers) and anesthetics, and today are considered indispensable to medical practice. In the past decade, however, the preference for barbiturates in some medical applications has declined, primarily due to the availability of other drugs with certain similar effects, including the minor tranquilizers (such as Valium®, Librium® or Equanil®). The minor tranquilizers and other non-barbiturate sedative-hypnotics are discussed in Appendix A.8 which follows. Although significant differences exist in some instances, the general pharmacological similarities between the barbiturates and many of these other drugs are such that these substances are often considered together as a group under the heading of "anxiolytic sedatives".^{100, 169} In 1971, barbiturates were estimated to account for more than one-fifth of all prescriptions for mood-modifying drugs in Canada, and are second only to the minor tranquilizers in total prescriptions in both Canada and the United States.^{18, 157}

Although some problems with non-medical barbiturate use were noted soon after these drugs were introduced, in the 1930s there was considerable controversy regarding the nature and extent of chronic barbiturate intoxication and the consequences of their non-medical consumption.^{50, 59, 167} The significance of barbiturate dependence and its similarity to alcoholism and, to a lesser degree, opiate narcotic dependence has become apparent only in the past few decades.^{42, 50, 76} For many years, barbiturates have been the leading toxic agents involved in fatal poisonings and suicides in North America.

In the past three-quarters of a century, an estimated 2,500 different pharmacologically active derivatives of barbituric acid have been developed, of which perhaps 25 to 50 have been marketed for medical use.^{50, 134, 154} Less than a dozen make up the bulk of current use in Canada. The barbiturates vary in the potency, latency and duration of their effects, but there is considerable overlap among them and differences are generally only a matter of degree. They are often classified by the duration of their sedative or hypnotic action at a standard dose.

Among the most widely used barbiturates in Canada are the short-to intermediate-acting compounds, including amobarbital (Amytal®), secobarbital (Seconal® or 'reds'), pentobarbital (Nembutal® or 'yellows') and butobarbital (Butisol®). Tuinal®, a mixture of amobarbital and secobarbital, is very popular in both medical and non-medical use. Similar barbiturates which have been singled out as likely candidates for non-medical use in the United States include cyclobarbital, heptabarbital, probarbital, talbutal and vinbarbital.¹⁵⁶ Long-acting barbiturates, such as phenobarbital (Luminal®) and the ultra-short-acting variety, such as hexobarbital (Evipal®) or thiopental (Pentothal®) are commonly employed for medical purposes, but are less often used non-medically than are the intermediate compounds.

In North America it has been traditional to use names ending in "al" for the barbiturates; in Great Britain the letters "one" are commonly suffixed instead (e.g., barbital or barbitone). In addition to descriptive slang terms based on the usual colour of the pharmaceutical capsule (e.g., 'reds', 'yellows', 'blues', 'rainbows', etc.), barbiturates are often referred to as 'sleeping pills', 'barbs', 'downers', or 'goof balls'.

It is frequently said that in North America the supply of barbiturates lawfully manufactured or imported greatly exceeds the requirements of legitimate medical use or exportation.^{18, 156, 157} Many current non-medical users were initiated into barbiturate use under medical auspices; such persons may develop dependence and maintain use long after the original medical rationale for the prescription is absent. Apparently most of these barbiturate users continue to obtain the drugs through legitimate channels.⁶³ Since many physicians do not adequately maintain or monitor prescription records, a patient may be able to arrange an increase in the frequency and/or quantity of drug prescribed. In addition, many chronic users of barbiturates and other prescription drugs obtain 'legitimate' prescriptions from a number of different doctors simultaneously, without the physicians' awareness.⁶⁵ (See also Appendix B.7 *Sources and Distribution of Minor Tranquilizers, Barbiturates and Other Sedative-Hypnotics.*)

The occasional medical and non-medical use of barbiturates appears to be widespread across age groups and social classes, but the chronic use of these drugs has seemed to be most common among persons over 30 years of age. Prescription controls are only partially effective; possession of these drugs for personal use without medical authorization is not a criminal offence;

and users do not appear to form a homogeneous, cohesive or easily recognized minority. Hence, the usual medical and legal data sources and other traditional research techniques have been of relatively little assistance in assessing the extent and consequences of non-medical barbiturate use in Canada. While a considerable body of research exists into the many medical applications of these drugs, there has been relatively little systematic investigation of non-medical use. As with other drugs which are widely available on a prescription basis, the distinction between the medical and non-medical use of barbiturates is often particularly difficult to make. An increase in the extent of barbiturate use among young people in the United States has recently become the focus of much attention.^{156, 157} In Canada, there are some indications that the use of these drugs by teenagers and young adults may be growing as well.⁶¹ (See also Appendix C *Extent and Patterns of Drug Use*.)

MEDICAL USE

The medical uses of barbiturates are based on their sedative, hypnotic, or anti-convulsant effects. In low doses (e.g., 25–50 mg), the short- or intermediate-acting compounds are widely used as sedatives or tranquilizers in the treatment of tension and anxiety. The hypnotic effect of these drugs is familiar to thousands of Canadians who use barbiturates in higher doses (e.g., 100–200 mg) in the form of the common sleeping pill. Barbiturates are regularly administered as anesthetics or pre-anesthetics (often in conjunction with other drugs) in surgical or dental situations; but they have little effect on pain if used alone.^{68, 125} The ultra-short-acting compounds are most commonly used as intravenous anesthetics. The anti-convulsant effects of certain barbiturates have been very important in the treatment or prevention of acute convulsions associated with tetanus, various neurological disorders including epilepsy, poisoning due to the overdose of stimulants such as strichnine, nicotine or cocaine, and withdrawal symptoms associated with alcoholism and other sedative drug dependence. The intermediate- to long-acting barbiturates are those most commonly employed in anti-convulsant applications. The convulsion-blocking properties of these drugs are not necessarily correlated with their general sedative potential. Barbiturates have also been employed in the treatment of asthma, pre-menstrual tension, motion sickness, nausea and vomiting, peptic ulcer and other gastrointestinal disturbances, hyperthyroidism, and high blood pressure and other cardiovascular disorders.^{100, 106, 134} Barbiturates may be used to treat adverse reactions or 'bad trips' associated with LSD and other hallucinogenic drugs.

Occasionally barbiturates may assist in the diagnosis and psychotherapy of certain psychiatric disorders. In some applications the drug is administered in a slow intravenous infusion with the dose adjusted to keep the patient in a semi-conscious state, relaxed and uninhibited, thereby facilitating communication, diagnosis and perhaps therapy. This procedure is essentially the same

as that used in the so-called 'truth serum' application in criminal investigations. This latter effect is just a carefully monitored response to common barbiturates. While this procedure frequently results in information which is less inhibited or otherwise different than that normally communicated, there is little evidence that it actually exposes the 'truth' as such.

As noted earlier, the use of barbiturates as day-time sedatives, tranquilizers and sleep inducers has declined somewhat in the last decade due to the increasing popularity of certain minor tranquilizers and non-barbiturate sedatives, some of which are considerably less physically toxic than the barbiturates. Heavy sedation of psychotic patients with barbiturates was once common in certain psychiatric hospitals, but these drugs have been largely replaced in such applications by the major tranquilizers or neuroleptics (such as the phenothiazines) which can control many symptoms of psychosis without extensive depression of central nervous system functioning.

In summary, the barbiturates are considered indispensable in certain aspects of medical practice, but in many common prescription applications they could be replaced by other drugs which are less likely to produce significant adverse effects as a result of non-medical use.

CHEMICAL ANALYSIS OF ILLICIT SAMPLES IN CANADA

There has been surprisingly little systematic chemical analysis of illicit barbiturates in Canada. These drugs were not specifically mentioned by Marshman and Gibbins in their summary discussion of illicit drug samples analysed at the Addiction Research Foundation of Ontario in 1969-70.¹⁰⁵ The Health Protection Branch quantitative analysis study of police seizures does not include barbiturates as primary drugs for special analysis, nor were any found mixed with the opiate narcotic, amphetamine or hallucinogen samples reported by HPB to the Commission for 1971-72.^{62, [b]} The HPB has identified 339 barbiturate samples among the total police seizures for the 12-month period ending in March 1973.

In the Commission's study of illicit drug samples (1971-72) no barbiturates had been presented to the researchers as such.¹¹⁴ However, barbiturates were detected in 28 (2.9%) of the 980 drug samples analysed. Eight samples were reported to contain only barbiturates; these had been represented as LSD, 'speed' or were of unspecified identity. Ten samples contained barbiturates in combination with methamphetamine and nine with LSD. These samples had generally been presented as methamphetamine or LSD respectively.^[c]

These data suggest that barbiturates were not a major item in that part of the illicit drug distribution system assessed by these studies (i.e., primarily the youth-oriented market). It appears that the samples that were found came originally from legal sources; there were no indications of illicitly manufactured barbiturates. (See also Appendix B.7 *Sources and Distribution of Minor Tranquilizers, Barbiturates, and Other Sedative-Hypnotics.*)

ADMINISTRATION, ABSORPTION, DISTRIBUTION AND PHYSIOLOGICAL FATE

In crystalline form, barbiturates are odourless white or yellow powders with a slightly bitter taste. They are available as powders, elixirs, injectable solutions, suppositories, capsules or tablets (in both sustained and delayed release forms). Barbiturates are frequently marketed for medical use in mixtures with other drugs such as other sedatives, tranquilizers, analgesics, belladonna alkaloids (atropine or scopolamine), various stimulants (amphetamine or caffeine), vitamins and certain gastrointestinal therapeutic agents.¹³²

Barbiturates are usually administered orally for both medical and non-medical purposes, and are readily and efficiently absorbed by the stomach, small intestine, and rectum.^{106, 134} After ingestion, absorption is most rapid on an empty stomach, and effects of some barbiturates may occur within 20 minutes. A full stomach may double the time required for effective absorption. Both intramuscular and intravenous injections are efficient, but they are prone to physical complications and are generally avoided except for special purposes. Barbiturates are almost never given subcutaneously since they can cause considerable local pain under the skin and may seriously damage the tissue. Persons who inject barbiturates non-medically usually prepare a solution of tap water and crushed tablets or capsules originally intended for oral use.

After absorption into the blood stream, barbiturates are distributed rather uniformly throughout the body, but the various barbiturates show some individual differences in the facility with which they enter the brain. These drugs readily cross the placental barrier into the fetus in pregnant women. Barbiturates are eliminated by the kidney in the urine, partly in their original form, but largely as breakdown products resulting from enzymatic metabolism in the liver. Metabolism is more extensive and subsequent excretion is faster with the shorter-acting barbiturates. Binding of the drug in the blood plasma or by tissue protein, and its affinity for tissue fat may also affect the rate at which the barbiturate is eliminated from the body and its net effect on the nervous system. The short-acting barbiturates are highly lipid soluble and may accumulate in body fats with repeated use. Variations in distribution, metabolism and excretion are largely responsible for the differences in potency, latency and duration of action of the different barbiturates.^{13, 85, 134}

Barbiturates stimulate the production of the enzymes responsible for their metabolism in the liver, thus resulting in more rapid and efficient deactivation and a shorter duration of action with repeated use. Since many drugs are metabolized by the same non-specific enzyme systems, barbiturate use may alter the body's response to other substances as well. Liver diseases or damage, such as those associated with chronic heavy alcohol use, reduce the rate of barbiturate metabolism and subsequent excretion, and may result in an exaggerated or extended response.^{25, 26, 85}

Barbiturates and their metabolites are readily detectable in body fluids using standard analytic methods.^{5, 21, 38, 83, 148} However, the quantity of fluid and the time required for extensive analysis using traditional techniques reduces the usefulness of the methods in certain applications. Recently, radio and spin immunoassay techniques have been described which allow a rapid, specific and extremely sensitive analysis of minute samples.^{101, 143}

PSYCHOLOGICAL EFFECTS

The short-term psychological and behavioural effects of barbiturates are highly similar to those of alcohol. Depending on the conditions of use, at low doses barbiturates typically result in relaxation, a heightened sense of well-being, and often drowsiness and a moderate decrease in alertness and attention. Alternatively, the same dose may produce a period of excitement during which the individual is more sociable, jovial, impulsive, or energetic. There may be decreased inhibition of certain drives and, depending on the individual, one might feel more amorous, aggressive, creative, playful or hungry.

At higher doses, the effects of the drug on the motor system become apparent, and include a diminished ability to react quickly and to perform skilled precise tasks. Sedation is common. The emotions are often labile, and the individual may alternate between feelings and displays of unusual affection, euphoria, or hilarity, on the one hand, and rudeness, hostility, aggressiveness and violence, on the other. Emotional depression, self-pity and social withdrawal are not uncommon. (The involvement of barbiturates in suicide is discussed below.) At still higher doses slurred speech, blurred vision and an unsteady gait occur along with other signs of drunkenness. The individual may have difficulty walking or manouvering around simple obstacles without collisions or falls, and there is characteristic confusion and difficulty communicating effectively. With such doses, behavioural sedation often becomes predominant and the individual may fall into a stupor or sleep. Intravenous barbiturate use may produce a 'warm rush', but not the 'flash' or 'splash' associated with cocaine or methamphetamine injection.

The variability in the short-term response under medically supervised conditions is described by Wikler:

After intravenous injection of 0.25 to 1.0 gm of amobarbital, a subject may fall asleep if he lies in bed undisturbed, yet he may be awake and voluble if interviewed by a psychiatrist, or he may exhibit ataxia on attempting to walk back to his bed, but he may 'sober up' promptly when instructed to pose for a motion picture demonstration of ataxia.¹⁶⁶

Driving

Several reviews of the drugs and driving literature in Canada and the United States have concluded that there is little evidence that barbiturates have contributed significantly to highway crashes.^{90, 119, 138, 160} In Canada,

arrests for impaired driving involving barbiturates are rare, perhaps in part because the use of these drugs is not detectable with a *Breathalyzer* or other convenient test, nor do they produce any characteristic odour on the breath. Recently, an increase in driver and pedestrian arrests involving barbiturate use has been reported in some areas of the United States.¹⁵⁷

Definitive studies on barbiturates and driving have not yet been carried out and the data that do exist are incomplete and difficult to interpret. Road research has been hampered by numerous difficulties including practical problems in determining drug levels in the body at the time of accidents, and the possible confounding effects of other drugs. The role of alcohol in traffic accidents, for example, became more apparent after studies showed that drivers in accidents had higher blood alcohol levels than non-crash drivers who had been using the roads under similar circumstances.¹¹

Laboratory studies of psychomotor performance and other psychological functions presumed to be important in automobile driving indicate that barbiturates may produce a dose-related impairment, and that some effects may last up to a day after a large sleep-inducing dose.^{91, 92, 104, 109} Under some conditions, low doses of barbiturates may improve performance.^{100, 155} As noted earlier, the behavioural effects of barbiturates are very similar to those of alcohol. With high doses of either drug, the user may demonstrate a diminished ability to react quickly and to perform skilled precise tasks (particularly those requiring selective attention). Aggressiveness and risk-taking may increase. Low therapeutic doses may not cause driving problems, but further research is needed. It has been suggested that persons who are very tense may become safer drivers after low doses of barbiturates.¹⁰⁰ Overall, it appears that in high doses barbiturates have the potential for contributing to automobile accidents and that barbiturates in combination with alcohol would be an added hazard.

Psychiatric Complications

Although heavy users of barbiturates may be hospitalized for the treatment of dependence, there is little indication of major psychiatric disorders directly attributable to the effects of these drugs. Acute toxic psychoses are uncommon, although delirium, paranoid symptoms and aggressiveness may be present during heavy intoxication. Short-term psychoses often occur during withdrawal in heavy dependent users. Secondary barbiturate involvement in, or complication of, various psychological problems has been reported in many dependent users. In one study multiple drug users noted more adverse psychological effects with barbiturates than with heroin.²⁸

The heavy use of barbiturates and other sedatives may contribute to what has been described as an "amotivational syndrome", characterized by apathy and reduced drive and ambition. It has been noted that the work output of certain barbiturate dependents is minimal, and may generally be lower than that of persons dependent on heroin, for example.^{28, 93} Considerable concern has been expressed over the possible adverse effects of

chronic sedative use on the maturation process in adolescents.^{156,157} A recent United States Senate committee report on barbiturate use in juveniles summarized the testimony of Sidney Cohen as follows:

Those involved in the "downer" scene, even if they avoid the associated illnesses, injuries and fatalities, will sustain a significant defect in their personality development. They will have spent long periods during their maturation evading with chemicals the very elements of existence which promote human growth: the frustrations, problems and stress of daily life. It is this aspect of bedrugged adolescence which is particularly tragic—the loss of opportunity to grow up psychologically.[P.4]¹⁵⁷

In the Commission's 1971 national survey of psychiatric hospitals barbiturates were mentioned in the primary diagnoses of 19 (0.08%) and in the secondary diagnoses of 9 (0.04%) of the 22,885 patients in the hospitals at that time.^{67.[a]} In British Columbia, general hospitals with psychiatric wards were surveyed as well; barbiturates were noted in the diagnosis of 6 of the 293 psychiatric patients in the reporting hospitals. The national mental health data collected by Statistics Canada for 1971, indicated that barbiturate dependence accounted for 66 (0.11%) of the first admissions and 60 (0.11%) of the readmissions to psychiatric hospitals and wards.^{16, 129,[e]} More than half of these admissions involved females and the majority were over 25 years of age. These two sources of data suggest that in 1971 barbiturates were not a significant factor in psychiatric admissions in Canada. (See also Tables A.5, A.6 and A.7 in the Annex to this appendix.)

Crime

At present, barbiturate use does not appear to be a significant contributor to, or correlate of, crime in Canada. In the United States there are indications that barbiturate use is growing, particularly among youth, and an increase in barbiturate-related crime in that country has been noted.^{158, 157}

There are several ways in which barbiturate use might be associated with crime. As with alcohol, barbiturates may increase the likelihood of certain individuals becoming aggressive or violent. Persons dependent on barbiturates may commit crimes in an effort to obtain the drug, either by stealing it or by stealing money or property with cash value for the purpose of purchasing the drug. However, because of the ready availability of barbiturates from many legal sources and, consequently, the low price of illicit barbiturates (compared to heroin, for example) this type of barbiturate-related crime is relatively infrequent in Canada. Heavy barbiturate use by some delinquent groups in the United States has been noted,¹⁴² but the role of the drug in their illegal behaviour is not easily interpreted. Barbiturates may be used to gain confidence or to reduce nervousness in preparation for previously planned crimes. Most barbiturate users in Canada (including the majority of dependent users) are apparently adults who live an otherwise socially acceptable existence without significant involvement in criminal activities.

PHYSIOLOGICAL EFFECTS

The primary short-term physiological effect of barbiturates is a general depression of central nervous system and muscular activity, although the response to low doses may be quite variable. Initially, the electroencephalogram (EEG) may suggest some activation or arousal, but with sufficient dose (e.g., 100–200 mg), this brain wave pattern is usually replaced by signs of drowsiness or sleep.^{78, 165} The somnolence induced by barbiturates generally resembles normal sleep with the exception of an initially marked reduction in dreaming and in the rapid eye movement (REM) sleep stage.^{45, 120} (REM sleep is thought to be related to dreaming, but its overall significance is only beginning to be appreciated.) With repeated use some tolerance develops to REM suppression. As with alcohol, barbiturates are thought to produce their principal effects by inhibiting activity in the brain stem reticular formation, which among other things, controls sleep and wakefulness. Direct effects on other areas of the brain are likely involved as well.²

Drowsiness or 'hangover' symptoms may follow acute barbiturate intoxication or drug-induced sleep. Such 'hangovers' generally lack the nausea and other gastrointestinal disruption associated with alcohol since barbiturates have little irritant effect on the stomach and intestines.

A variety of transient or temporary physiological changes occur with moderate doses; the majority of these reflect a general slowing down of physiological activity which normally occurs with behavioural sedation, and are of little clinical significance. A minor decrease in gastrointestinal and autonomic nervous system activity may occur. The brain centres responsible for the control of breathing are especially sensitive to higher doses, and fatal depression of these mechanisms is the primary danger in barbiturate overdose.^{106, 134}

A toxic or poisoned state may be produced by five to ten times the normal sleep-inducing dose, and is characterized by coma and a general shock syndrome (e.g., weak rapid pulse, shallow breathing, low blood pressure and cold sweaty skin). Larger quantities may be fatal as a result of respiratory arrest, cardiovascular collapse and/or kidney failure. Quantities of 15 to 20 times the usual hypnotic dose may produce death in a matter of minutes; however, if proper treatment is administered before breathing has stopped the chances of recovery are generally good. If the overdose is not fatal, a temporary jaundice (due to impaired liver function), respiratory complications, kidney dysfunction and skin reactions may result. Other damage may occur indirectly as a result of respiratory depression. Some of these toxic reactions may also appear with normal doses in individuals allergic or abnormally sensitive to the barbiturates.^{106, 134} Because of the well-documented additive or potentiating effects among many sedatives, users of related drugs, such as alcohol, must be especially attentive to barbiturate dose levels.

Following chronic use of barbiturates there is generally fairly complete recovery from direct drug effects. Other than possible secondary complications of injections in some users, instances of severe physiological disorder, or of irreversible brain, liver, kidney, heart, gastrointestinal or other tissue damage are rarely noted. Barbiturates do not greatly affect eating habits and diet, and consequently nutrition is usually adequate, in contrast to the typical situation of heavy chronic alcohol consumption. Unlike barbiturates, alcohol provides calories and disrupts normal gastrointestinal function.

Chronic barbiturate intoxication may lead to an increased incidence of accidental injuries, including, among others, possible head injury and brain damage. In addition, neglect of personal hygiene and other factors important to health may render some heavy users more susceptible to certain forms of disease and infection. Heavy barbiturate users may also run a greater risk of becoming dependent on alcohol, a condition associated with a variety of health problems, as discussed earlier.

Since barbiturates are highly effective orally and are typically taken by this route even by chronic heavy users, complications caused by injections are less commonly seen than with dependence on heroin or methamphetamine. The popular sodium salts of barbiturates are strongly alkaline and can cause considerable pain and tissue damage if injected under the skin. Abscesses and infections have been reported to result from unsuccessful attempts at intravenous injection. Cases have been reported where barbiturates were mistakenly injected into an artery instead of a vein.^{57, 66} Rather than following the normal venous route through the general vascular system in the body, such arterial injections result in immediate high drug concentrations in the small peripheral blood vessels in the extremities. This produces excruciating pain, tissue damage and, in some instances, gangrene which may necessitate the amputation of parts of the hands or feet.

In addition to these possible direct effects of barbiturate injection, further complications including hepatitis, tetanus, malaria, abscesses and ulcers of the skin, and a variety of other infections may be caused by shared or unsterile needles or drugs. Repeated intravenous injections result in scarred veins ('track marks') and other vascular damage. Furthermore, the injection of insoluble or colloidal particles (which are typically present in drug preparations intended for oral use) often damages lung tissue and can be fatal.^{4, 135}

SELF-POISONING, SUICIDE AND ACCIDENTAL DEATH

The role of barbiturates in poisoning and death is quite different from that of most of the drugs discussed in this report. For decades barbiturates have been cited as a major source of poisoning and the leading cause of drug overdose deaths in North America. In Canada more acute overdose fatalities are attributed to barbiturates than to all other psychotropic drugs combined.¹⁵ Similarly in California, for example, barbiturates were involved

in more than half of all drug-related deaths in 1970–71.¹⁵⁶ The vast majority of the barbiturate-related fatalities in Canada involve deliberate self-poisoning by adults, with or without lethal intent.

In 1971, there were 2,134 non-fatal and fatal barbiturate poisonings reported to the Federal Poison Control Program.¹¹⁸ Among all pharmaceutical preparations, only acetylsalicylic acid compounds (e.g., Aspirin®) and certain minor tranquilizers (e.g., Valium®) were responsible for more toxic reactions than barbiturates. Relatively few poisonings with these non-barbiturates were fatal, however. Barbiturate cases made up approximately 4% of the total of almost 53,000 poisonings reported for all substances (including drugs, household chemicals, weed killers, insecticides, etc.), but barbiturates were involved in one-quarter of the fatal poisonings reported to the Program. Of those substances noted in the report to “frequently lead to drug abuse” (excluding alcohol), barbiturates accounted for less than one-seventh of the toxic reaction cases, but more than half of the reported fatalities.

The rate of reported barbiturate poisonings in the population was highest for children under five years of age, but overdose fatalities in this group are rare. Adults over the age of 25 had the second highest per capita poisoning rate and accounted for the majority of both non-fatal and fatal poisonings. The proportion of total barbiturate poisonings which was accounted for by persons over 25 has risen slightly during 1965–71. Almost two-thirds of the cases were females. In 1971, of 1,478 instances of barbiturate poisoning where the disposition of the case was specified, 755 (51%) resulted in hospitalization; these patients received a median of four to five days hospital care. There were reports of 89 barbiturate-related deaths, of which 63% included mention of other drugs as well, with alcohol noted in the majority of these latter cases. Only six of the fatal poisonings involved persons between 10 and 24 years of age. Drug interactions in the non-fatal poisonings are not reported, and all cases appear under only one drug category in the official *Poison Control Program Statistics*.

The proprietary barbiturate preparations most frequently mentioned in the 1971 poisoning reports were: Tuinal® (secobarbital and amobarbital, 458 cases); Seconal® (secobarbital, 425 cases); Carbital® (pentobarbital and carbromal, 148 cases); Fiorinal® (butalbital, caffeine, phenacetin and A.S.A., 102 cases); Amytal® (amobarbital, 95 cases); and Nembutal® (pentobarbital, 69 cases). Of 58 fatal reactions where the specific barbiturates were noted, secobarbital or amobarbital, either alone or together as Tuinal®, appeared in 49 (85%) of the reports.

According to the *Causes of death* statistics published by the Federal Government, in 1971 there were 482 drug overdose deaths in Canada which were attributed at least in part to the effects of barbiturates.¹⁵ In 309 cases (64%), barbiturates were the only drugs mentioned, but in 173 cases other drugs were indicated as well, with alcohol noted in 144 instances. These figures undoubtedly underestimate the total involvement of barbiturates

in fatal poisonings. In most areas of Canada, autopsies are not carried out in a large proportion of self-poisoning or suicide cases, and screening for barbiturates in the body is even less common.^{113, 152} Furthermore, some barbiturate-interaction deaths involving a variety of drugs are put in a general unspecified category in government statistics and, consequently, cannot be easily identified.^{121, [m]}

In 1971 barbiturates were involved in 8.5% of 2,559 deaths attributed to suicide or intentional self-inflicted injury in the official statistics.¹⁵ Of 591 fatal self-poisoning cases involving a group of compounds designated as "solid or liquid substances" (which includes licit and illicit drugs, household chemicals, insecticides, etc.), 217 (37%) of the deaths were attributed to barbiturates, the most frequent toxic agents noted. Of all barbiturate fatalities, there were 283 cases where the circumstances of death had been specified; 77% of these were classified as suicide. This is likely an underestimate of the actual proportion of the total deaths which involved intentional self-poisoning (but not necessarily including fatal intent). In many instances adequate information is not readily available to ascertain the intentions of the deceased and such ambiguous cases are typically left unspecified or are classified as accidents. In addition, there is often considerable reluctance on the part of physicians to designate fatalities as suicides on death reports. Follow-up research indicates that a large proportion of fatal poisonings originally classified as accidents actually involved intentional self-injury or suicide.^{29, 152}

Women constituted 78% of the cases reported as suicides and 59% of those designated as accidents in the official 1971 statistics.¹⁵ Quite consistently during 1965–71, approximately two-thirds of the barbiturate deaths have involved persons over 40 years of age. After rising somewhat in the late sixties, the number of barbiturate deaths in Canada has levelled off and declined slightly in the early seventies—reflecting, in part, the shift in medical prescribing away from barbiturates to the minor tranquilizers and non-barbiturate sedatives.

It would appear that relatively few barbiturate deaths in Canada were purely accidental in the sense that they did not involve suicide attempts or intentional self-injury. Fatalities due to overdose in young persons taking barbiturates for the 'trip' or euphoriant effects are quite infrequent and make up a very small proportion of the total number of barbiturate-related deaths.¹¹³ As well, few deaths result from intended therapeutic use of these drugs. Consequently a more detailed examination of the concept and conditions of suicide is appropriate in this discussion.

Many researchers have concluded that the majority of "suicide attempts" might better be called "suicide gestures", and do not actually involve a serious intention of death.^{72, 87, 108, 117, 146} Most such acts are considered to be primarily sympathy- or attention-getting devices and are often a plea for help or an attempt to force the subsequent resolution of some personal conflict. Although cases of intentional self-poisoning and suicide frequently

involve 'repeaters' with previous intentional self-injuries, the act is usually impulsive and not carefully planned in advance.^{72, 81, 88, 89, 137, 152} Instances where individuals had actually acquired drugs for the purpose of self-injury are apparently infrequent.^{24, 81, 82, 107, 137} Typically, the drugs employed had been in the person's possession for some time prior to the poisoning, and were originally acquired through legitimate prescription for medical use. Many self-injuring individuals have a prior history of psychiatric disorder.

The use of alcohol in combination with barbiturates is common in self-poisonings, and a disproportionately large number of persons engaging in suicidal behaviour are problem drinkers. (The significant role of alcoholism in suicide is discussed in more detail in Appendix A.6.) It is thought that a significant number of self-poisoning suicide gestures result in unintended fatalities due to the accidental administration of a lethal dose, especially when the individual has been drinking heavily.^{145, 162, 163} Because of these frequently reported patterns, the careless or excessive prescribing of barbiturates for depressed patients, heavy drinkers or persons with a history of self-injury has been severely criticized.^{81, 81, 100, 134, 137}

A phenomenon called "drug automatism" is sometimes mentioned in association with toxic barbiturate overdose, although many observers have expressed doubts as to its significance. In this situation, individuals in a drug-induced state of confusion or stupor are said to administer additional quantities of the drug without being fully aware of the extent of previous doses.^{106, 134} In Canada, few, if any, such deaths have been documented.

As noted earlier, in the past few years the minor tranquilizers have become more frequently prescribed than the barbiturates.^{18, 27} There has been a concomitant increase in self-poisoning with the minor tranquilizers as a result. However, since some of these latter compounds (particularly the benzodiazepines) have very low lethal toxic potential there has been a decline in the proportion of fatal outcomes in the total number of poisoning cases involving sedatives and tranquilizers. Apparently, a reduction in the availability of barbiturates does not necessarily reduce the total number of self-poisonings or suicide attempts, but it may result in fewer overdose fatalities if available alternative drugs are less toxic. The relative toxicity of these various sedatives and tranquilizers, the incidence of related poisonings, and the associated prescribing trends are discussed in more detail below in A.8. *Minor Tranquilizers and Non-Barbiturate Sedative-Hypnotics.*

TOLERANCE AND DEPENDENCE

Tolerance to some of the effects of barbiturates readily develops; the degree and rate of its development vary considerably with the particular drug, the dose, the mode and frequency of administration and the individual involved. A phenomenon called acute tolerance (lasting several hours) may occur after a single dose, thus reducing the response to further doses given at short intervals. Depending on the barbiturate taken and the pattern of

use, more prolonged tolerance may begin to appear within days or weeks of daily administration.^{7, 70, 77, 94} The extent of maximum tolerance to sedative-hypnotics is quite limited compared to that which can result with opiate narcotics.⁸⁵ Barbiturate tolerance occurs to the greatest extent to the mood, sedative and behavioural effects. Tolerance to the lethal toxicity (i.e., respiratory depression) develops more slowly and to a lesser degree. As with alcohol, when general barbiturate tolerance develops the safety margin between the psychologically effective and the lethal dose is narrowed.

Several mechanisms seem to operate in producing barbiturate tolerance.^{25, 70, 85} As noted above, barbiturates stimulate the production of metabolic enzymes in the liver which inactivate these and many other drugs. The resulting increase in the rate of metabolism and excretion is primarily responsible for general tolerance. As well, some overall reduction occurs in the sensitivity of the tissues to the drug. Certain learning processes are also likely to be involved in changing the character of the response with repeated use. Tolerance develops more quickly to the shorter-acting barbiturates than to the long-acting varieties, perhaps because of the greater importance of liver metabolism in the inactivation and excretion of the former compounds. Most aspects of tolerance disappear after a few weeks of abstinence from the drug. Some persons may become more sensitive to barbiturates after withdrawal than they were prior to chronic use.^{42, 70}

The capacity of barbiturates to produce physical dependence was not generally recognized for decades after their wide medical acceptance, although considerable attention had been directed to problems associated with psychological dependence. A series of experiments by Isbell and associates, published in the early 1950s, clearly demonstrated that chronic use of large doses of barbiturates (i.e., several hundred milligrams per day) can produce profound physical dependence similar to that of alcohol.^{51, 74, 75, 76} The abstinence syndrome following withdrawal from large doses of barbiturates may begin with a reduction in intoxication and an apparent improvement in condition. Within a few hours, however, general physical weakness, dizziness, anxiety, tremors (the 'shakes'), hyperactivity, sleeplessness, nausea, abdominal cramps and vomiting may occur. These may be followed after several days by muscle spasms and grand-mal (epileptic) seizures. Between the third and seventh day, delirium, delusions and hallucinations may appear; these and other symptoms may last for days or even months, although general recovery usually occurs within a week or two. As with alcohol, death during the convulsive phase occasionally occurs.^{52, 60, 79} In extreme cases the barbiturate- or alcohol-type withdrawal syndrome is considerably more painful and dangerous than that associated with dependence on the opiate narcotics. Withdrawal effects following dependence on more moderate barbiturate doses are considerably less severe than the full syndrome described above. Most regular users of therapeutic doses do not develop significant tolerance or dependence. Babies born of mothers who are physically dependent on barbi-

turates are also typically physically dependent, and may suffer severe withdrawal symptoms if the condition is not recognized and treated soon after birth.^{9, 33}

Anxious or tense individuals may become psychologically dependent on even small doses in order to function in a manner which they consider satisfactory; many persons become dependent on barbiturate sleeping pills and feel that they cannot sleep without the drug; others become dependent on a variety of subjective effects which they feel are satisfying or perhaps essential to their well-being.

BARBITURATES AND OTHER DRUGS

The effects produced by combinations of barbiturates and other drugs may often resemble the interactions described earlier for alcohol. Because of the similarities among the barbiturates and other general sedatives, these drugs are often used interchangeably.³⁵ Barbiturates combined with alcohol, minor tranquilizers, non-barbiturate sedatives or volatile solvents often result in a more intense and longer-lasting effect than is produced by either drug alone.^{23, 49, 80, 98, 99, 168} In addition to direct additive effects, the presence of alcohol in the body may slow the metabolism of barbiturates.¹¹⁵

A certain amount of cross-tolerance exists among these drugs and chronic users of barbiturates are generally quite resistant to many of the effects of the other sedatives.^{54, 84} This cross-tolerance, however, may not appreciably affect the lethal dose, and large quantities of alcohol and barbiturates taken simultaneously (acting in an additive or potentiating fashion) may produce a toxic or fatal reaction in persons tolerant to other effects. In addition, these drugs generally show some degree of cross-dependence and have the capacity to block or diminish the withdrawal symptoms associated with physical dependence on the other sedatives.^{32, 54} Barbiturates are frequently used therapeutically to reduce the severity of withdrawal in alcoholics. Since most sedatives show this cross-dependence, individuals dependent on one may turn to other sedatives if the preferred drug is unobtainable. Consequently, chronic barbiturate dependents are usually heavy alcohol users as well. Most sedatives can also reduce some of the acute 'hangover' symptoms associated with other drugs of this class. Multiple drug users often refer to the barbiturate intoxication as a 'dry drunk'. See A.6 *Alcohol* for further discussion of barbiturate-alcohol interaction.

Little research has been done regarding the interaction of barbiturates and opiate narcotics in humans. It is clear, however, that the dose of either of these drugs which produces sedation, toxicity and death is lower when they are used together. Although barbiturates and opiate narcotics do not show significant cross-tolerance or cross-dependence, barbiturates are sometimes used to reduce the unpleasantness of opiate narcotic withdrawal. Some subjective effects of the drugs apparently interact in a complementary way when used together and barbiturates reportedly modify and prolong the

effects of heroin. Barbiturates are often employed by opiate narcotic users to strengthen or reinforce a weak heroin dose or as a substitute when opiate narcotics are unavailable.^{20, 28, 64, 116, 140, 147} Persons on methadone maintenance are frequently reported to use barbiturates and alcohol to get 'high'.⁵⁵ The use of barbiturates is not socially acceptable in some opiate narcotic-using groups, however.²⁸

Barbiturates are often used in conjunction with amphetamines. The two drugs together may result in some enhanced psychological response, although certain of their central nervous system effects are antagonistic. Amphetamines are sometimes used in the treatment of barbiturate overdose, although the value of such applications is questionable.³⁷ Likewise, barbiturates are sometimes employed to reduce the toxic effects of stimulant overdose. Dexamy® is a popular prescription combination of dextroamphetamine and amobarbital which supposedly produces stimulation without the irritability or tension produced by amphetamines. An alternating cycle of sedation and stimulation has been frequently noted among certain medical and non-medical drug users. A stimulant may be used to overcome the drowsy hangover the day after a hypnotic dose of barbiturate. By evening, another sedative dose may be necessary to overcome the insomnia potentiated by the day's amphetamine. A somewhat related pattern has been demonstrated by some amphetamine-injecting 'speed freaks' who use barbiturates to terminate the stimulant effect, 'mellow the crash', or produce sleep after a 'speed run' of several days duration.

Apparently barbiturates are not often used in combination with cannabis, LSD or other hallucinogenic drugs in Canada. In rodent studies cannabis has been found to prolong barbiturate sedative-hypnotic effects, probably in part through metabolic interaction.^{56, 58, 96, 124, 154} Commission research showing marijuana enhancement of certain alcohol effects suggests that some interaction might be expected with cannabis and barbiturates.^{112, 127} Some concern has been expressed that even though cannabis is not very toxic physically, high doses taken in combination with barbiturates or other sedatives might enhance the toxicity of the latter drugs.¹²² In one animal study cannabis was shown to increase sensitivity to barbiturate overdose.⁴⁷

The Commission study of illicit drug samples indicated that LSD-barbiturate mixtures do occur, although they are uncommon.¹¹⁴ Such combinations would be expected to reduce some of the psychedelic and stimulant effects of LSD.⁶⁹ Barbiturates are often used to treat or terminate an LSD 'bad trip'. On some occasions barbiturates have reportedly been mixed with STP or MDA to reduce the amphetamine-like toxic side effects seen with large doses of these latter drugs.¹³⁹ It seems likely that barbiturates would enhance the sedative effects of PCP at doses typically taken, but such combined use has not been documented.

Although a number of drugs can block or reduce certain barbiturate effects, there are no known general barbiturate antagonists. The development of radio-immunoassay techniques for the chemical analysis of barbitu-

rates,^{101, 143} raises the possibility of a general immunization against barbiturate effects. However, no research in this latter area has been reported. Patterns of multiple-drug use are discussed in more detail in Appendix C *Extent and Patterns of Drug Use*.

A.8 MINOR TRANQUILIZERS AND NON-BARBITURATE SEDATIVE-HYPNOTICS

INTRODUCTION

There are many common drugs which have significant sedative-hypnotic properties. Alcohol and barbiturates have been discussed separately in this appendix, and their many pharmacological similarities were indicated. Barbiturates are often considered the prototype of sedative-hypnotic drugs; pharmacologically related compounds are frequently identified or discussed in terms of their similarities to and differences from them. We shall consider a rather heterogeneous aggregate of sedative compounds in this section under the general rubric of *minor tranquilizers and non-barbiturate sedative-hypnotics*. Because of significant similarities in effects, many of these drugs, and alcohol and barbiturates as well, are often considered together in broad categories given such titles as sedative-hypnotics, psychosedatives, anxiolytic sedatives (or just sedatives), non-selective depressants (or just depressants), ataractics, or psycholeptics.^{3, 32, 79, 125}

TABLE A.4

MINOR TRANQUILIZERS AND NON-BARBITURATE SEDATIVE-HYPNOTICS

- (1) *Acetaldehyde derivatives*
(e.g., chloral hydrate [Noctec®], paraldehyde)
- (2) *Propranolol derivatives*
(e.g., meprobamate [Equanil®, Miltown®], tybamate [Solacen®])
- (3) *Benzodiazepine derivatives*
(e.g., chlordiazepoxide [Librium®], diazepam [Valium®, Vivol®], oxazepam [Serax®], nitrazepam [Mogadon®])
- (4) *Piperidinedione derivatives*
(e.g., glutethimide [Doriden®], methyprylon [Noludar®])
- (5) *Pentynol derivatives*
(e.g., ethchlorvynol [Placidyl®], ethinamate [Valmid®])
- (6) *Quinazalone derivatives*
(e.g., methaqualone [Mandrax®, Mequelon®, Quaalude®, Sopor®, Parest®])
- (7) *Miscellaneous*:
 - (a) Monoureides (e.g., carbromal)
 - (b) Bromides (e.g., Nytol®)
 - (c) Anticholinergics (e.g., scopolamine, benactyzine)
 - (d) Antihistamines (e.g., dimenhydrinate [Gravol®, Dramamine®], diphenhydramine [Benadryl®], doxylamine [Decapryn®], hydroxyzine [Atarax®], methapyrilene [M-P®], phenyltoloxamine [Bristamin®], promethazine [Histanil®], pyrilamine [Neo-Antergan®], triprolidine [Actifed®])

The minor tranquilizers and non-barbiturate sedative-hypnotics can be divided into several groups as indicated in Table A.4.^{3, 79} With few exceptions, the drugs in the first six groups share significant common pharmacological properties and are similar to alcohol and barbiturates in many important respects: these drugs reduce anxiety and tension, and produce drowsiness and sleep at progressively higher doses; they elicit similar psychological and physiological signs of intoxication and overdose; they have relatively little effect on autonomic nervous system functions; they generally elevate the convulsion threshold; limited but significant tolerance develops with chronic heavy use; physical dependence can also occur with high-dose use; psychological dependence is sometimes reported; and significant but often incomplete cross-tolerance and cross-dependence may occur among them.^{3, 36, 38, 79, 125} The various drugs may differ to some extent in their potential for producing these effects. The major exceptions to some of these generalizations about sedative drugs are certain anticholinergic (acetylcholine blocking), antihistaminic (histamine blocking) and bromide compounds, although even these are similar to the other sedatives in many respects. In addition, most of the volatile solvents and gases have somewhat comparable sedative properties. Under certain conditions, cannabis has significant sedative or tranquilizing effects and has been used medically in Canada and many other countries for these purposes.^[e] Some further distinctions among the various sedative drugs are made in the following discussion.

The term “*minor tranquilizer*” was introduced in the scientific literature in the 1950s to distinguish some of the newer non-barbiturate drugs prescribed to reduce anxiety and tension from the “*major tranquilizers*” or *neuroleptics*, such as the phenothiazines (e.g., chlorpromazine) and rauwolfia alkaloids (e.g., reserpine), which are employed more as antipsychotic drugs in the treatment of such disorders as schizophrenia.^{8, 79, 103} The minor tranquilizers are intended to reduce anxiety, tension and agitation at doses which have relatively few other significant effects on emotional, cognitive or perceptual processes. The degree to which they approximate this goal and the extent to which they actually differ in this regard from the various barbiturate and non-barbiturate sedatives is still a matter of some controversy. In this report, and in much of the scientific literature, the label “minor tranquilizer” is restricted to the benzodiazepine and propanediol derivatives (e.g., Valium®, Librium®, Equanil®, Miltown®), but the term is often used in a broader sense to refer to other of the newer non-barbiturate sedatives as well. Although the benzodiazepines are perhaps most unique, few clear pharmacological distinctions can be drawn between most of these sedatives.

Much confusion is caused by the non-specific usage of the general label “tranquilizer”. Both major and minor tranquilizers are often indiscriminately grouped together under the broad heading of “tranquilizer” in spite of the fact that these two classes of drugs are quite dissimilar chemically and pharmacologically, and have generally different medical applications and patterns of non-medical use.^{8, 32, 33, 79, 107, 122, 125} The major tranquilizers do

not produce euphoria or other pleasant psychological side effects and are consequently rarely used non-medically. The minor tranquilizers, on the other hand, typically produce effects subjectively similar to those of alcohol and barbiturates, and may be used non-medically because of these properties. Dependence on the minor tranquilizers has often been reported in the literature. In spite of significant differences (especially as regards non-medical use), many official and lay sources continue to use the general category "tranquilizer", with no further differentiation, thereby confusing and confounding many important issues.^{17, 18}

The sedative effect of bromide was first used in medicine in the 1850s in the treatment of epilepsy. Bromides were soon employed on a large scale for a variety of psychological and neurological disorders. Unlike most other drugs which depress the functioning of the central nervous system, the bromides do not effectively induce sleep in large single doses. They are usually administered chronically for their general cumulative sedative effects. Although bromides are still employed in a variety of nerve tonics, headache remedies (e.g., Bromoseltzer®) and non-prescription 'sleeping pills' (e.g., Nytol®), they have generally been replaced in medical use by a variety of more effective and less toxic drugs.^{79, 109}

Chloral hydrate and paraldehyde are very effective sedative-hypnotics which were introduced into medicine in the latter part of the 19th century and are still employed in clinical therapeutics today. Chloral hydrate was the first widely used synthetic sleep-inducing (hypnotic) drug, and as 'knockout drops' added to alcohol produces the so-called 'Mickey Finn'. Both chloral hydrate and paraldehyde have been used in the treatment of alcohol withdrawal. Dependence on these drugs has become rare but is still sometimes seen.^{85, 90, 109}

Barbiturates were first used medically in 1903 and dominated the area of sedative-hypnotic therapeutics for the following half-century.^{79, 109} Most of the drugs in groups 2 to 6 of Table A.4 were developed in the 1950s or later, and have tended to replace barbiturates in many areas of medical and non-medical use. Many of these sedatives were introduced specifically as "non-barbiturates", suggesting major distinctions in dependence liability, toxicity and certain other effects. In some instances significant differences between barbiturates and the newer sedatives and minor tranquilizers are clearly documented, but many of these drugs have been shown to be more like barbiturates than was originally realized. Compared to the barbiturates, much less is known about the effects of both the medical and non-medical use of these newer drugs. It is interesting to note that thalidomide was introduced into medicine as a non-barbiturate sedative-hypnotic and is a very effective sleep-inducer.

The minor tranquilizers and non-barbiturate sedatives are among the most widely used drugs in medicine. In 1971, a Canadian Medical Association survey suggested that these drugs accounted for half of all mood-modifying drug prescriptions in Canada. In comparison, barbiturates made

up one-fifth of such prescriptions.¹⁹ Valium® (a benzodiazepine minor tranquilizer) is the widest selling prescription drug in Canada.⁵⁹

Until recently, the non-medical use of these sedatives was considered largely the domain of the 'average middle-class adult', but recent reports indicate that some of these compounds are gaining in popularity among youth as well.⁵¹ The non-medical use of Mandrax® (methaqualone and diphenhydramine) and other methaqualone preparations has frequently been noted in Canada in recent months. (See also Appendix C *Extent and Patterns of Drug Use*.)

Atropine and scopolamine (*l*-hyoscine) are belladonna alkaloids which block certain effects of acetylcholine in the body. Atropine generally produces central nervous system excitation, but scopolamine has mild sedative properties in moderate doses. In higher doses, however, both belladonna alkaloids have similar effects and may produce delirium and hallucinogenic responses.^{27, 50, 58, 62} Scopolamine is found chiefly in *Hyoscyamus niger* (henbane), *Datura stramonium* (Jimson or Jamestown weed, also known as thorn-apple or stink weed) and other *Datura* varieties. These drugs have been used in many societies since ancient times for a variety of medical and non-medical purposes. They were frequent ingredients in sorcerers' potions and poisons, and have served important religious functions in certain cultures.^{22, 62, 83} In the United States, scopolamine was commonly employed in non-prescription sedative and motion-sickness preparations, but in recent years it has been removed from many such over-the-counter products. It has not been commonly used for such purposes in Canada. Because of unpleasant side effects at high doses, these drugs are not frequently used non-medically, although a few reports exist, for example, of young people using such stramonium preparations as Asmador® cigarettes for hallucinogenic purposes.

There is a wide variety of drugs which are used medically for their antihistaminic and anticholinergic properties; many have significant central nervous system effects which are of interest here. Since antihistamines were first discovered in France in the 1930s, hundreds of pharmacologically related substances have been identified and synthesized.^{12, 34, 106} Many antihistamine-containing preparations are sold in Canada without prescription for use in the symptomatic treatment of a variety of ailments, including the common cold (e.g., Contact®), allergies (e.g., Actifed® [triprolidine and pseudoephedrine]) and motion sickness (e.g., Gravol® [dimenhydrinate]). Labels on many such antihistamine-containing products warn the user that drowsiness may be an expected side effect. The sedative properties of certain antihistamines are made direct use of, alone and with other drugs, in a variety of non-prescription and prescription sedative preparations (e.g., Sominex®, Mandrax®). The antihistamine drugs vary considerably in their sedative properties; some do not exert significant effects on CNS activity or may have mixed stimulant and depressant effects, while a few may rival the barbiturates in their tranquilizing or sleep-inducing capacity.^{32, 88, 113} Some antihistamines

produce significant psychological excitation at high doses and hallucinogenic effects have been noted under such conditions.^{58, 84} There is apparently relatively little non-medical use of antihistamines alone, although, for example, the use of large doses of Gravol® to get 'high' (often in combination with alcohol) has occasionally been reported among juveniles. Antihistamines with sedative capacity generally have significant anticholinergic properties as well, which may account for some of their central nervous system effects.¹⁰⁹ Consequently, clear distinctions cannot be made between anticholinergic and antihistaminic classifications in many instances.

There are many over-the-counter preparations which are sold as tranquilizers or sedatives. Most contain some combination of bromides, salicylates, anticholinergics, antihistamines or other drugs (e.g., Sominex®, Sleep-eze®, Nytol®, Devarex®, Compoz®). The pharmacological rationale and effectiveness of some of these concoctions has been questioned on numerous occasions, and it would appear that many such preparations are of little or no therapeutic value and may have significant adverse side effects.^{76, 78, 82, 83, 101}

MEDICAL USE

As with barbiturates, the minor tranquilizers and non-barbiturate sedatives are mainly prescribed for patients suffering from anxiety, tension, behavioural excitement, and insomnia. Some are also used in the treatment of lower back pain, convulsive disorders, withdrawal symptoms of barbiturate-alcohol type dependence, and acute anxiety and panic reactions which sometimes occur with certain hallucinogenic drugs. Some minor tranquilizers are effective muscle relaxants.^{24, 79, 88, 109}

Some clinicians feel that chemotherapy of anxiety should be a secondary approach in psychiatry (although frequently the most expedient) and that drugs should be used primarily to relieve immediate distress, and to aid the patient only until other treatment procedures become effective.⁷⁹

In addition to their use as sedatives, certain antihistamines (e.g., dimenhydrinate) and anticholinergic drugs (e.g., scopolamine) are employed in the prevention and treatment of nausea and vomiting associated with early pregnancy, motion sickness and other conditions. Antihistamines are commonly used for the symptomatic treatment of hay fever and numerous other allergic reactions. They also relieve nasal congestion and discharge associated with the common cold, lessen rigidity and tremor of parkinsonism, and some are moderately effective local anesthetics.^{34, 106} Scopolamine and other belladonna alkaloids are used medically, for example, in the symptomatic treatment of parkinsonism, congestion due to allergies and the common cold, peptic ulcer, and bed-wetting, and are employed in conjunction with other drugs in certain anesthetic applications.^{27, 62}

CHEMICAL ANALYSIS OF ILLICIT SAMPLES IN CANADA

There has been relatively little chemical analysis of illicit minor tranquilizers and non-barbiturate sedatives in Canada. None was mentioned in Marshman and Gibbins' 1970 report from Ontario.⁸⁶ The Health Protection Branch special study of police seizures does not focus on these substances, but methaqualone was identified in 20 samples combined with other drugs.^{54, [b]} There were 18 samples involving methaqualone and an anti-histamine; LSD was also present in 14 of these cases and heroin was detected in four. There were also two samples of LSD and methaqualone together. These samples contained a median of 20 mg (range: 11–77 mg) of methaqualone per unit dose and approximately 2 mg per capsule of the anti-histamine was typically found.

In the Commission's collection of illicit drug samples and our national survey of authorized analytic facilities (1971–72), 15 samples of high purity methaqualone were found along with two LSD-methaqualone combinations.^{93, [c]} Of the unmixed methaqualone samples, two had been represented as mescaline, five as Mandrax® and eight were of unspecified identity. In addition, four samples of chlordiazepoxide, and one each of diazepam, oxazepam, ethchlorvynol and methyprylon were reported. No antihistamines were noted in this study. Two samples of plant materials containing belladonna alkaloids were found.

ADMINISTRATION, ABSORPTION, DISTRIBUTION AND PHYSIOLOGICAL FATE

The minor tranquilizers and non-barbiturate sedatives are usually administered orally as tablets, capsules or elixirs, but some are occasionally injected for both medical and non-medical purposes. These drugs are generally rapidly absorbed by the stomach, intestine and rectum, and absorption after oral administration is typically most rapid with an empty stomach. Once absorbed, the drugs are generally distributed quite uniformly throughout the body. Some are metabolized, or otherwise chemically altered (usually in the liver), and excreted into the urine, while others are eliminated unchanged. As with barbiturates, some of these drugs increase the body's production of the enzymes responsible for their metabolism. Certain of these substances may be detected in the urine for several weeks after use is discontinued. The factors of distribution, metabolism, and excretion are responsible for many of the differences in potency and duration of action of these drugs.^{14, 32, 88, 109, 122}

Methods of detection of some of these drugs and their metabolites in urine and blood are sophisticated and expensive, while others are readily identified with standard analytic techniques.^{23, 30, 39, 64, 115, 123} There are currently no immunoassay methods available for any of these sedatives.

GENERAL EFFECTS

With most of these drugs, psychological and behavioural responses to low doses are quite variable. There may be sedation in some instances and, in others, an increase in activity. Studies reveal that complex interactions between the specific drug and the level of anxiety may occur, even within the same pharmacological group; psychological and behavioural performance may be impaired or improved, depending on the dose, personality of the user and the degree of anxiety present.^{32, 79}

Normal doses usually provide relaxation, a feeling of well-being and perhaps some loss of inhibition—effects not unlike those associated with social alcohol drinking. The response to moderate and high doses of most of these sedatives is a general depression of nervous and muscular activity and certain other body functions. Compared with other sedatives, minor tranquilizers are thought to have less inhibitory effect on the parts of the brain which are responsible for arousal and motor control, and may have greater muscle relaxant effects.^{32, 38, 79, 88, 109} The taming effect of minor tranquilizers in animals has frequently been observed.^{9, 57, 118} As noted earlier, certain antihistaminic and anticholinergic drugs produce considerable excitation in high doses; hallucinogenic effects have been reported with some of these substances.^{50, 58, 78, 84}

Excessive use of most sedatives may produce drowsiness, ataxia, lethargy, disorientation, confusion, memory impairment, trance-like episodes, double vision, personality alterations, rage reactions, and other symptoms resembling those of drunkenness. Other side effects observed with certain of these sedatives include skin rashes, nausea, diminished sex interest, menstrual and ovulatory irregularities, blood abnormalities and increased sensitivity to alcohol.^{32, 79, 88, 109}

The national mental health data collected by Statistics Canada for 1971 indicated that dependence on non-barbiturate sedative-hypnotics and minor tranquilizers (ICDA—304.3) accounted for 51 (0.09%) of the first admissions and 33 (0.06%) of the readmissions to psychiatric hospitals and wards. More than half of these admissions involved females and the majority were over 25 years of age. These data suggest that in 1971 these drugs were not a significant factor in psychiatric admissions in Canada.^[e] (See also Tables A.5, A.6 and A.7 in the Annex to this appendix.)

DRIVING

The current knowledge regarding the role of minor tranquilizers and non-barbiturate sedatives in automobile accidents is somewhat similar to that described for barbiturates. Existing data suggest that these drugs have not contributed greatly to highway crashes.^{71, 97, 114 121} In Canada it is an offence to drive while intoxicated by any drugs, and the penalties are the same as those for drunken driving. Traffic convictions involving drugs other than alcohol rarely occur, in part because of the difficulties in proving intoxication.

A number of studies have attempted to estimate the incidence of drug use in the general population, in the driving population, and in the victims of automobile crashes; other reports have focussed on the driving records of individuals known to be users of one or another drug. In general these data have proven to be incomplete and frequently difficult to interpret. There is a clear need for further research in this area. Such research should include emphasis on the chemical detection of drugs in the body fluids or tissues of drivers involved in crashes as compared to persons not involved in such accidents but using the roads under similar circumstances.

Laboratory studies have shown that large quantities of some minor tranquilizers and non-barbiturate sedatives can disrupt performance on certain psychomotor, intellectual and perceptual functions—suggesting that with sufficient dose such drugs may have the potential for increasing the likelihood of automobile crashes. Ordinary clinical doses may not have such effects.^{72, 80, 81, 119} Certain antihistamines and belladonna alkaloids might disrupt performance on tasks related to driving, but little relevant research exists.

In one study the accident rate in a group of drivers using prescribed doses of Librium® was ten times the accident rate for the general population, but it is not clear whether the accident rate among these drivers, who “needed” a tranquilizer, was so high because of, or in spite of, the drug they were taking.^{37, 79}

TOXICITY, POISONING AND DEATH

As with barbiturates, the majority of serious overdose cases with the minor tranquilizers and non-barbiturate sedatives involve adult intentional self-poisoning (although not necessarily with fatal intent). Much of this literature was reviewed previously in A.7 *Barbiturates*. The number of poisonings or toxic reactions involving these various drugs is generally related to their availability through medical prescription.⁹² However, the various sedatives differ considerably in their lethal toxicity,^{13, 79, 99, 112, 123} and certain compounds (e.g., the benzodiazepine derivatives) which are involved in many poisonings, may result in very few deaths. It should be noted that official mortality statistics must be interpreted with caution. In many cases autopsies are not performed and a thorough drug identification and chemical investigation of the cause of death is often not conducted.^{92, 117}

In the 1971 *Poison Control Program Statistics* there were 4,966 poisonings attributed to “tranquilizers” (both the major and minor categories together) and 1,588 to non-barbiturate sedatives and hypnotics.^{96, [f]} Diazepam (Valium® or Vival®) accounted for 2,758 toxic reactions and was second only to acetylsalicylic acid compounds (e.g., Aspirin®) as a source of poisoning in Canada. Chlordiazepoxide (e.g., Librium®) was noted in 922 cases, oxazepam (e.g., Serax®) in 62, a chlordiazepoxide and bromide combination (Librax®) in 60, and meprobamate (e.g., Equanil®) in 52. Females outnumbered males by almost two to one in these data. Approxi-

mately one-quarter of the minor tranquilizer poisonings occurred in children under five years of age, but none of these cases was reported to be fatal. There were 23 drug death reports which mentioned either diazepam or chlordiazepoxide; in 20 of these cases other drugs were specified as well. Three fatal poisoning reports mentioning only Valium® were generally incomplete. One meprobamate interaction death was reported. It should be noted that well-documented cases of simple overdose deaths involving chlordiazepoxide or diazepam are rare or non-existent in the scientific literature.^{10, 28, 29, 59, 79, 99}

The Poison Control Program category of "other sedatives and hypnotics" contains a heterogeneous group of chemicals.⁹⁶ Methaqualone-containing compounds were reported in 437 cases, with Mandrax® noted in 391 of these. One methaqualone death (Mandrax® and Librium®) was reported. The other most frequently named sedatives were: Noludar® (methypylon), 264 cases; Placidyl® (ethchlorvynol), 147 cases; Doriden® (glutethimide), 85 cases; and chloral hydrate, 53 cases. There were 12 deaths involving these latter drugs, primarily as interactions with other compounds.

There were also 80 toxic reaction cases involving Sominex® preparations (typically containing bromides, antihistamines and other substances)¹⁶ and 42 Nytol® (bromides) reports. Listed separately were 160 Graval® and 133 Actifed® toxic reactions. Poisonings with other antihistamines were noted as well. There were no deaths attributed to any of these latter drugs.

Including drug interaction deaths, the number of fatalities reported per thousand poisonings were: 59 for barbiturates, 10.7 for non-barbiturate sedatives (and meprobamate) as a group, and 6.3 for the benzodiazepine minor tranquilizers. If only single drug fatalities are considered, the corresponding rates for these three drug groups are 25.8, 3.3 and 0.8 respectively. In other words, excluding drug interaction reports, barbiturate poisonings were 7.8 and 32 times as likely to be reported fatal as were the non-barbiturate sedative and the benzodiazepine minor tranquilizer cases respectively.^[k]

Because of the variety of different compounds subsumed under the topic of minor tranquilizers and non-barbiturate sedative-hypnotics, it is not possible to derive a clear picture of the fatalities involving these drugs from the *Causes of death* statistics published by the Federal Government.¹⁸ These various drugs are often not differentiated or specified in official statistics and are frequently considered together with many other psychotherapeutic agents—particularly when drug interaction is involved.^[m]

In the *Causes of death* report for 1971, 32 deaths were ascribed to "tranquilizers" in general.¹⁸ A detailed list of the specific drugs involved revealed that four deaths were attributed to diazepam, one to chlordiazepoxide and four to meprobamate.⁹⁸ The remainder involved major tranquilizers. A similar situation existed for 1969 and 1970 as well, when 12 and 15 deaths respectively were ascribed to the former three drugs. Over the three-year period, two-thirds of these individuals were women and approximately two-

thirds of the cases had been designated as suicides. No specific information is available from these government statistics regarding interactions involving these and other drugs.

In the same 1971 report, 61 deaths were attributed to non-barbiturate sedatives and hypnotics alone, with an additional 29 noted in combination with alcohol.¹⁸ Little other specific information is available regarding fatalities due to interactions of these and other drugs. Only three fatalities involving persons under 20 years of age were noted and these were in the 15–19 age category. The majority of the deaths occurred in persons over 40 years of age. Chloral hydrate, paraldehyde, or bromides were specified in four cases, but all other non-barbiturate sedatives were pooled in a single class in the official statistics. There is no methaqualone-specific category in these statistics, but our survey of provincial coroners indicated that a number of drug-related deaths in young people have involved methaqualone—usually in combination with other drugs.^{56, [z]} We have no reliable information on the extent of such occurrences.

For 1971, there was a total of 99 deaths which involved minor tranquilizers or non-barbiturate sedatives, alone or in combination with other drugs, in the official national statistics.¹⁸ In contrast, there were 482 barbiturate-related deaths for the same period. After adjustment for the number of prescriptions issued (using the Canadian Medical Association's prescription estimates¹⁹), barbiturates were approximately 100 times as likely to be associated with drug overdose fatalities (per prescription) as were the minor tranquilizers (benzodiazepine and propanediol derivatives) and more than three times as likely as the other non-barbiturate sedatives as a group. In a United States report, the incidence of suicide with barbiturates was 32 times the incidence of suicide with "minor tranquilizers" (meprobamate or chlordi-azepoxide), and 2.8 times as great as that involving "new non-barbiturate hypnotics", when related to prescriptions written.¹⁰

The variation in fatalities among these drugs is possibly due to a combination of factors, including differences in: direct lethal toxicity, interaction with other drugs, drug-induced confusional states, potentiation of emotional depression, unit dosage size, number of doses per prescription and certain personality characteristics and disorders of the persons involved. Further research in this area is clearly indicated.

TOLERANCE AND DEPENDENCE

Tolerance can develop to most of the effects of these sedatives with regular use, and the dose may be increased by some users in order to maintain the desired effects. Although originally introduced as 'non-habituating', most of these drugs have been shown to be capable of producing both psychological and physiological dependence resembling that seen with alcohol and the barbiturates. Physical dependence is infrequently seen, but can occur with sustained use of large doses of almost all of the drugs in groups 1 to 6 of

Table A.4. Significant tolerance and dependence generally does not occur with therapeutic doses.^{32, 36, 40, 61, 65, 79, 110} Some tolerance to the sedative effects of the anticholinergic and antihistaminic drugs may develop with regular use, but dependence has not been reported.

The clinical descriptions of the abstinence syndrome following abrupt withdrawal after excessive use of some of these drugs indicate a marked similarity to one another and to those of alcohol-barbiturate dependence. The syndrome may be characterized by anxiety, apprehension, tremulousness, muscle twitches, insomnia, headache, rapid pulse rate, fever, loss of appetite, nausea, vomiting, abdominal cramps, sweating, fainting, hyperactive reflexes, convulsions, and uncontrolled urination and defecation. In addition, delirious states can occur with motor agitation, hallucinations, delusions, disorientation and confusion. After very heavy daily use for long periods of time, the abstinence syndrome can be very serious, and a few deaths have been attributed to withdrawal from some of these drugs.^{38, 39}

MINOR TRANQUILIZERS, NON-BARBITURATE SEDATIVES AND OTHER DRUGS

Although these various sedatives have many common features, as noted earlier, there may be significant differences in certain effects, and all of the sedatives cannot be expected to interact with other drugs in the same way. Since the number of different compounds under consideration is large, determining interaction effects for all possible drug combinations would be an enormous undertaking. So far such interactions have generally been investigated only superficially, and consequently only the most general statements are possible. Some of the following topics have been covered in more detail in the previous discussions of alcohol and barbiturates.

Recent detailed studies of alcohol-meprobamate interaction conducted by researchers at the Addiction Research Foundation of Ontario and Rutgers University are indicative of the complexities of this topic. The direction and intensity of the interactions of these two drugs were shown to depend on various dose, time and administration factors, as well as the particular response examined.²⁰

Under many conditions, combinations of the various sedative drugs may result in more intense and longer lasting effects than are produced by a given dose of one of the drugs administered singly. Some antihistamine and anticholinergic drugs may also enhance the effects of other sedatives at certain doses.^{6, 15, 26, 35, 45, 124}

Cross-tolerance and cross-dependence occur among many sedative drugs.^{61, 65} Persons dependent on one of these drugs may turn to the others for a desired effect. Minor tranquilizers and other sedatives are often used to reduce the severity of the alcohol withdrawal syndrome. The development of cross-tolerance among the sedatives does not appear to significantly affect the lethal dose and large but sub-toxic doses of each drug, if taken together, may produce a toxic or fatal reaction in persons tolerant to other effects.

Very little research has been done regarding the interaction of opiate narcotics and the various minor tranquilizers and other sedative drugs. It is expected that certain effects of these drugs would add in such a way that the doses which produce sedation, toxicity and death are lower when they are combined.

The interaction between the various sedatives and the stimulants is complex, with some responses being additive, and others dominated by one or the other drug. Certain sedative effects may be antagonized by stimulants. Various sedatives are reportedly taken in alternation with stimulants by a variety of users. As an extreme example of this phenomenon, intravenous users of amphetamines may take sedatives to ease the discomfort of the 'crash' at the end of a long 'speed run'.

A.9 VOLATILE SUBSTANCES: SOLVENTS AND GASES

INTRODUCTION

The inhalation of volatile substances and gases for non-medical purposes has been known for centuries, although it has only been within the last decade that such practices have come very commonly to the attention of public health officials.^{11, 17, 34, 36, 46} While recent occurrences of adolescent 'glue sniffing' have received the most publicity, a wide variety of other substances and practices have been involved. These drugs have frequently been labelled *deliriants*, although delirium is only one of many potential effects and is clearly not restricted to these substances. Some of these drugs have much in common with the sedatives (such as alcohol and barbiturates) and might be considered in a sub-class of that group. In addition, certain solvents and gases apparently have some psychedelic or hallucinogenic properties and, in sufficient doses, are anesthetic.

Many of the chemicals used may be described as volatile hydrocarbon solvents and are highly soluble in lipids (fats)—a major component of living tissue. Most of the substances are either gases at room temperature or rapidly evaporate from a liquid phase to a gaseous state when exposed to the air. This property makes them highly desirable, industrially, in the production of materials in which fast drying is essential. The solvents are also usually highly flammable.

There are literally hundreds of easily accessible forms of these materials, which may run from hardware store and cosmetic sundries to clinical drugs and anesthetics. Some common products which may contain large quantities of these chemicals are: fast drying glues and cements; many paints, lacquers and varnishes, and their corresponding thinners and removers; gasoline, kerosene and various other petroleum products; lighter and dry cleaning fluid; fingernail polish remover; and various aerosol products. Active chemicals in these materials include toluene (also called toluol or methylbenzene), benzene, acetone, naphtha, hexane, cyclohexane, trichlorophane, trichloroethylene,

perchloroethylene, carbon tetrachloride, chloroform, ethyl ether, and various alcohols, ketones and acetates. Closely related chemically to the solvents are the freon gases which are commonly used as aerosol and refrigerant gases. Nitrous oxide (often called "laughing gas") and related nitrites are also highly volatile substances with long histories of non-medical use. It was recently observed that 38 different products containing such substances were available from the shelves of a single service station-hardware store in Ottawa.

It is clear that we have in this drug category a large aggregate of chemically diverse substances from a wide variety of sources. While this heterogeneity precludes any broad and all-encompassing generalizations, many of the substances have common properties which warrant general consideration.

Most of these drugs have not been investigated individually in much detail, since only a few have had extended medical use. There has been little systematic pharmacological investigation of the deliberate and repeated inhalation of solvents. In most instances, human studies have been limited to gross investigations of toxicity in industrial situations which have limited application in this context.^{24, 29, 32, 58, 67} Some significant information can be gleaned from individual clinical case study reports of intentional users.

Nitrous oxide, ethyl ether and chloroform, three of the best known inhalant anesthetics, had considerable non-medical recreational use which preceded their general medical acceptance. In 1844, the following advertisement was circulated in Hartford, Connecticut:

A Grand Exhibition of the effects produced by inhaling Nitrous Oxide, Exhilarating or Laughing Gas! will be given at Union Hall this (Tuesday) Evening, Dec. 10th, 1844.

Forty gallons of Gas will be prepared and administered to all in the audience who desire to inhale it.

Twelve Young Men have volunteered to inhale the Gas, to commence the entertainment.

Eight Strong Men are engaged to occupy the front seats to protect those under the influence of the Gas from injuring themselves or others. This course is adopted that no apprehension of danger may be entertained. Probably no one will attempt to fight.

The effect of the Gas is to make those who inhale it either Laugh, Sing, Dance, Speak or Fight and so forth, according to the leading trait of their character. They seem to retain consciousness enough not to say or do that which they would have occasion to regret.

N.B.—The Gas will be administered only to gentlemen of the first respectability. The object is to make the entertainment in every respect, a genteel affair.¹⁷

Although this event occurred before the systematic investigation and general medical acceptance of nitrous oxide as an analgesic and anesthetic, the promoters of the entertainment showed considerable appreciation for

the variety of potential effects of the drug and the importance of the individual personalities of those taking it. The non-medical use of nitrous oxide apparently continued on a small scale, and recently seems to be coming back into vogue in North America.

During the century before ether was established in medical practice, it was widely used as an industrial solvent and often as an intoxicant. It frequently served as a replacement beverage for alcohol during times of liquor scarcity in numerous areas in Europe, Great Britain and North America in the 19th century. During World War II, ether consumption increased in Germany when alcohol became unavailable. Inhalation of small amounts of ether and chloroform on special occasions is reported to have been accepted practice in certain sophisticated social circles in North America before the turn of the century.⁴⁶

Ether inhalation parties were not uncommon during the 19th century, especially among students and associates of the healing professions. In fact, it was the observation of one of these ether 'jags' which directly led to the first medical use of ether as a clinical anesthetic by C. W. Long. Soon after, Oliver Wendell Holmes suggested the word *anesthesia* to describe the state of "insensibility" which accompanies the unconsciousness or sleep induced by large doses of these substances.¹⁷

Although non-medical use of volatile substances has been reported across age groups and spanning social class, recent surveys concur with the law enforcement and public health impressions that use is predominantly a phenomenon of youth, reaching a peak in early teens and dropping off soon after. (See Appendix C *Extent and Patterns of Drug Use*.)

(For federal and provincial provisions with respect to volatile substances see Appendix B.8 *Sources and Distribution of Volatile Substances: Solvents and Gases*.) The almost unlimited number of potential substances makes specific legislation of questionable value as a deterrent. It has often been suggested that manufacturers add to the products most commonly used, a substance which renders the original material offensive to the user. An irritant chemical or obnoxious odour might serve this purpose, although it might also be unpalatable to the manufacturing staff and the legitimate user of these products as well. In Canada, at least one major producer of airplane glue has experimented with mustard oil in this connection.¹⁴ The pervasive use of highly volatile, potentially psychoactive substances for largely non-drug purposes in our society makes this approach seem impractical as a general solution. Furthermore, restricting certain chemicals would have little overall effect since many materials, such as gasoline, are easily obtained by any age group. Effective restriction of access to most such substances could not be achieved except at considerable inconvenience to a large segment of the population. This is an area which clearly calls into question the potential of the crimino-legal system in controlling non-medical drug use.

MEDICAL USE

Most of the volatile substances have had no regular medical use although in many instances the general effects produced are similar to those of the clinical inhalant anesthetics. Ether, nitrous oxide, trichloroethylene (Trilene®) and chloroform have been widely used as anesthetics, to reduce pain and produce unconsciousness prior to and during surgical and dental work, and at one time they were used as sedatives. Other nitrogenous compounds (e.g., amyl nitrite) are used in the therapy and relief of heart pain and, occasionally, asthma.^{17, 46, 50}

ADMINISTRATION, ABSORPTION, DISTRIBUTION AND PHYSIOLOGICAL FATE

In many instances the active agents in the substances used would be absorbed if taken orally, although inhalation generally provides a more rapid and effective means of administration and a sharpening of effects. Techniques used in inhalation are usually designed to maximize the gas concentration in the air. Frequently the substance is emptied or sprayed into a plastic or paper bag, which is held tightly over the nose and mouth, and the fumes inhaled. Alternatively, a cloth may be dipped in a liquid or the active substance otherwise applied to the cloth, which is then rolled up and held against the nose and/or mouth and the vapours sucked in. In other instances, the drug might be sniffed directly from an open container or inhaled through a tube. Aerosol gases have sometimes been sprayed directly into the mouth. Nitrous oxide is often inhaled directly from tanks (such as those used in medical and dental work, or in soda fountain dispensers), and is sometimes sold in balloons for non-medical use. Amyl nitrite is available in ampules or 'pearls' which are broken to release the fumes.

As noted earlier, the drinking of certain relatively pure substances, such as ether, has also been reported. The effects of oral administration are said to be in many ways similar to those of ordinary alcohol. The somewhat different initial effects of solvent inhalation are probably due to the more rapid rate of absorption from the lung, as compared to the gastrointestinal tract. These observations again underline the importance of route and rate of administration in determining drug effects.

In certain cases some metabolism occurs in body tissue, although many of these drugs are eliminated, chemically unchanged, by the lungs in gaseous form. Consequently, the odour of the substance may be noticeable on the breath for several hours after use. Some solvents are primarily excreted in the urine. Most of the common volatile substances can be chemically detected in either the urine, blood or breath of users.^{16, 18, 57}

EFFECTS

The psychological and physiological effects of the volatile solvents are in many respects similar to those produced by alcohol, barbiturates and other

sedatives. Low doses can elicit considerable behavioural and psychological arousal, while higher amounts usually result in sedation and a general reduction in activity. Little is known as to the specific mechanism by which these substances exert their action. As with most drugs, the effects of the volatile solvents and gases can be expected to vary considerably with the individual, his mental set, and the setting in which the substance is used.

Little controlled research has been conducted on the psychological effects of the solvents. Frequently reported are a lessening of inhibitions, a feeling of sociability and well-being, and a general elevation of mood. Higher doses may produce laughing and silliness, feelings of floating and being "out of contact", dizziness, perceptual distortions of time and space, and illusions. Certain of these substances are said to have subjective effects which are in some respects similar to those produced by the psychedelic drugs. In addition, confusion, drunkenness, slurred speech, blurred vision, a feeling of numbness, nasal secretion, watering of the eyes, headache, incoordination and, not infrequently, nausea and vomiting may also occur.^{48, 67} As the dose is further increased, the general sedating-anesthetic effects dominate, and drowsiness, stupor, respiratory depression and, finally, unconsciousness result. Extreme quantities may inhibit breathing and produce death.

During the acute phase of intoxication, judgment may be impaired, and considerable confusion, hyperactivity, and lack of behavioural control may occur. Some individuals become irritated, tense, or frightened, and acute psychoses have been noted. There is no evidence of long-term psychotic reactions, however. Reported results of such conditions include accidents, panic, self-destructive behaviour, physical aggression, and other antisocial acts.^{49, 68}

The acute effects may be as short as five to ten minutes or last up to an hour, depending on the substance used, the dose administered, and a variety of other factors. Most of these agents are short-acting. Users frequently retain their supply and repeat the administration over several hours, attempting to maintain a balance of intoxication often close to, but below that producing unconsciousness. The state achieved is somewhat analogous to light clinical anesthesia, where mixed stimulation and depression of various psychological and physiological systems occur. Because of the sensitivity of the nervous system to subtle changes in dose, maintaining this level of intoxication is frequently not an easy task, and undesired 'conk-outs' may occur.

Medical anesthetists, in trying to achieve deep anesthesia in a patient with high doses, generally attempt to pass through this early deliriant stage quickly and may use a variety of techniques and other drugs to minimize the erratic stimulating effects of light anesthesia. Many individuals may be able to recall the dream-like experiences and unusual feelings and thoughts which are characteristic of 'going under' with inhalant anesthetics. Such experiences are not unlike the intoxication effects sought by some individuals in the non-medical use of these substances.

The majority of recent reports on volatile solvent inhalation have been concerned with juveniles who had come to the attention of the authorities because of some antisocial or delinquent behaviour, which may or may not have been associated with drug use. Most of these individuals had emotional or behavioural difficulties prior to the use of the drug, and no careful investigation has been done with non-delinquent solvent users, even though there are indications that these latter individuals may make up the majority of users. Little adequate information is available on the long-term psychological outcome of chronic solvent inhalation, although many observers have expressed concern over possible adverse effects of heavy drug use by young people coping with the already trying and often troublesome stage of early adolescence.

In one of the first systematic studies of adolescent glue sniffers, Mas-sengale and associates were unable to find any evidence of significant effects of solvent use on physical health.⁴³ Although the authors discovered no neurological or intellectual abnormalities, they felt that glue use was a prominent complicating factor in the delinquency of many of their 27 patients. The majority of the solvent users were poorly adjusted to school, had few friends, were generally withdrawn, and were similar psychologically to adult alcoholic patients. Other investigators have also failed to find evidence of irreversible effects on intellectual functioning in chronic glue sniffers.²²

Temporary changes or abnormalities resulting from acute intoxication with some solvents have been reported in kidney and liver function, bone marrow activity, and a variety of psychological and neurophysiological tests. Gastroenteritis, hepatitis, jaundice, blood abnormalities and peptic ulcers are among the complications reported to be associated with the use of some of these products. In addition, some chronic users have developed slow-healing ulcers around the mouth and nose.^{4, 9, 39, 42, 49, 67, 68, 71} The frequent loss of appetite, and resulting poor eating habits, in chronic users may complicate the situation further, and weight loss and various nutritional disorders have also been reported. It appears so far, however, that after discontinuing drug use, complete recovery from these disorders usually occurs. There is little unequivocal evidence of permanent brain damage or other nonreversible psychological or physiological abnormalities due to the deliberate inhalation of these chemicals. Many solvents have not yet been investigated, however, and generalizations about potential dangers from existing data cannot be extended to the vast number of unstudied volatile substances. We have found no evidence that volatile substances are responsible for a significant number of psychiatric admissions in Canada.

While the commonly held belief that permanent brain damage is a regular result of glue sniffing is not supported in the scientific literature, numerous industrial studies involving related chemicals, as well as certain laboratory animal experiments, suggest that irreversible physiological and psychological changes might occur with prolonged exposure to some solvents. As noted earlier, gases (such as freon) are sometimes sprayed directly into the mouth

and throat from aerosol cans. The hazards of such practice include the possible freezing of lung tissue and anoxia.¹³

In the past few years, a number of deaths have been attributed to volatile solvent use.^{45, 68} The majority of these fatalities have occurred when the user was inhaling alone, and appear to be due to mechanical suffocation which was subsequent to unconsciousness produced by the drug. Simple unconsciousness, if of short duration, might be quite harmless since fresh air usually produces complete and rapid recovery. However, if the user's mouth and nose is covered by a plastic bag, as is often used for inhalation, suffocation may occur. Also, if the user's face remains close to the vapour source after he loses consciousness, he may continue to breathe fumes which could produce further overdose and respiratory arrest due to depression of the brain-stem breathing centres. A few fatalities have been attributed to vomitus suffocation and, perhaps, damage to lung tissue. In addition, a small number of solvent sniffers in North America have died suddenly and unexpectedly without suffocation, general CNS depression, or gross organic injury.⁷ Such infrequent but clearly identified sudden sniffing deaths can result after only a few deep inhalations and have generally occurred under conditions of considerable physical activity or stress. Direct cardiac arrhythmia and arrest may be responsible in some cases.^{3, 4, 52, 59, 60}

The Commission has investigated in considerable detail reports of volatile solvent poisoning and death in Canada.⁴⁴ The Federal Poison Control Program has records of 174 cases of solvent sniffing poisonings occurring in 1971.^[1] Six of these were fatal. The most common materials involved were nail polish remover (84 cases), glue (68 cases) and paint thinner (18 cases). Males outnumbered females by two to one in these data, and most of the cases involved persons between 10–24 years of age. The Commission's study of provincial coroners' reports provided detailed information on ten deaths attributed to deliberate solvent inhalation in Canada during the years 1968–71.^{31, [8]} Eight of the ten cases occurred in Ontario, nine were males and all were between 10 and 18 years of age. In nine of the cases, the deceased was found with a plastic bag over his face. Asphyxia and pulmonary edema were commonly noted. It would appear that the vast majority of solvent deaths in North America would have been avoided if some method of administration not involving plastic bags had been employed.

TOLERANCE AND DEPENDENCE

Although no tolerance occurs with occasional use, the chronic user of some volatile substances may require several times as much of the active material to achieve the desired state of intoxication as was originally necessary in the beginning.²⁸ The possibility of physical dependence with withdrawal symptoms has not been adequately investigated to date, although existing clinical reports suggest that it does not occur. This is somewhat surprising given the pharmacological similarities between the volatile solvents and the

sedatives, which do produce both tolerance and physical dependence. Furthermore, cross-tolerance between the sedatives and solvents has been suggested by the frequently reported insensitivity of chronic alcohol and barbiturate users to ether anesthesia. It is possible that such factors as the rapid excretion of most volatile solvents and/or the usual intermittent patterns of use make the development of physical dependence unlikely, since sustained tissue concentration is very probably an indispensable factor in the establishment of such dependence.

Symptoms of psychological dependence and compulsive use have been recorded, although chronic use is not frequent. Certain regular users reportedly become restless, irritable and depressed if they cannot have access to the drugs.

SOLVENTS AND OTHER DRUGS

As noted above, cross-tolerance seems to occur between some solvents and the sedative drugs. It has been noted that solvents are taken in conjunction with alcohol by certain individuals.⁵ Alcohol has been shown to augment the adverse effects of trichloroethylene on visual-motor performance.²³ Barbiturates also intensify the effects of certain solvents.^{37, 38} Interaction with other CNS depressant drugs would also seem likely, but little research in this area has been conducted. Ether and cannabis did not show significant interaction in a study with mice.²⁶

The use of drugs currently available on the illicit market, such as marijuana and amphetamines, has been reported in some youthful solvent users. Adult users of solvents often have a history of heavy alcohol consumption and may switch from one drug to the other. Although some observers entertain the hypothesis that chronic use of solvents in early youth may predispose one to the misuse of other drugs (especially alcohol) in later life, there is, as yet, no empirical evidence to confirm or deny a causal link between solvent use and the use of other drugs. It would appear that solvents are often the substances chosen for non-medical use by very young people primarily because of their ready availability to anyone. Subsequent drug preferences and use patterns may merely reflect an expansion of the options available.

Nevertheless, in view of the generally accepted psychological principle that early significant life experiences tend to be more persistent and to play a more important role in the formation of future behavioural tendencies than later experiences, e.g., during or after adolescence, it would seem reasonable to assume that children who have been repeatedly exposed to the exciting and subjectively rewarding effects of repeated manipulation of mood and consciousness with chemical substances might be at higher-than-average risk to become predisposed to indiscriminate multiple-drug use in later life. (See also Appendix C *Extent and Patterns of Drug Use.*)

A.10 TOBACCO

INTRODUCTION

In a relatively short time tobacco has become one of the most commonly used drugs in the world. Tobacco is prepared by drying and curing the leaves of *Nicotiana tabacum* or, less commonly, *Nicotiana rustica*, plants indigenous to the Western Hemisphere, and more recently grown in moderate climates around the world. The earliest documented use of tobacco occurred with American Indians, in what is now Arizona, a few centuries after the birth of Christ. Even earlier cultivation and use probably occurred in South America.^{12, 91}

Jacques Cartier encountered the use of tobacco in Canada in 1535 and Samuel de Champlain recorded his experience with it in 1615. A major component of the history of tobacco in Canada involves two Indian nations, the Petuns and the Attawandarons, who lived on the north shores of Lake Erie and Lake Huron (Georgian Bay). The word Petun was often used as a name for tobacco in parts of North and South America, and later in England and France. The Petun Indians produced tobacco for trade and domestic consumption. Tobacco had a sacred as well as social character for the Indians and was used in ceremonial rites, in the treatment of diseases, and to ward off evil. Smoking the tobacco pipe was associated with peace and contentment, and was part of the ceremony in any tribal business.⁹⁰

The Petuns were defeated in a war with the Hurons in 1649, and in 1661 the Attawandarons suffered the same fate by the Iroquois. These once prosperous and strong nations were later dispersed by the white colonialists and finally confined to reservations. The land they farmed was deserted for over 100 years until the British Crown bought it in 1784, surveyed it, and settled it by 1800. During the 19th century the tobacco industry began to grow and large plantations flourished in the areas where tobacco was formerly grown by the Indians.⁹⁰

Tobacco use spread rapidly to Europe and beyond, soon after communication and trade was established with the New World, and within a few centuries tobacco became popular in most parts of the world. The rapid assimilation of tobacco smoking by societies with no previous acceptance or common experience with the intentional inhalation of smoke has few parallels, and is possibly the most dramatic 'epidemic' spread of drug use in history.^{12, 13, 29}

The widespread use of tobacco did not occur without opposition. In 1604, not long after Sir Walter Raleigh and others popularized the smoking of tobacco in England, King James I published a now famous treatise entitled *Counterblaste To Tobacco*, in which he identified smoking as:

A custome lothsome to the eye, hatefull to the Nose, harmefull to the braine, dangerous to the Lungs, and in the blacke stinking fume thereof, nearest resembling the horrible Stigian smoke of the pit that is bottomelesse.⁸⁷

In other countries, tobacco users were threatened with imprisonment, fines, excommunication, torture, disfigurement, and, in China in 1638, beheading.¹² The sale of tobacco was prohibited in many parts of the United States. The use of tobacco was opposed in many areas of Canada and prohibition was considered in the early part of this century.²⁸

As recently as January, 1884, the *New York Times* issued the following warning about the spread of tobacco use:

A grown man has no possible excuse for thus imitating the small boy The decadence of Spain began when the Spaniards adopted cigarettes and if this pernicious practice obtains among adult Americans the ruin of the Republic is close at hand.⁷¹

None of these policies or warnings seem to have had much effect in the long run.

Today about 40% of Canadians over the age of 15 smoke tobacco regularly,^{20, 27, 65} and Canada is now fifth in world production of flue-cured tobacco.²³ Tobacco is second only to wheat in agricultural exports.^{23a} About 95% of the crop comes from Ontario in areas where it was originally grown by the Indians.⁹⁰ (See also Appendix B.9 *Sources and Distribution of Tobacco* and Appendix C *Extent and Patterns of Drug Use*.)

Restrictions on tobacco advertising have been implemented in parts of Canada and the United States. In 1971 an American government survey indicated that over one third of the general public favoured a complete ban on the sale of cigarettes.⁹³

The main chemical constituent of tobacco possessing pharmacological properties is nicotine. The percentage of nicotine in tobacco varies considerably, but averages about 1.5% in cigarettes today. Even those cigarettes which are claimed to be 'denicotinized' still contain substantial amounts of the drug. In addition, more than 500 other compounds, many of which have some physiological effects, have been isolated from tobacco smoke. Tarry and phenolic substances, for example, contribute significantly to the irritation of respiratory mucosa.^{1, 4, 87, 101, 102}

Concentrated nicotine is a highly toxic poison and was once widely used in North America as a pesticide (e.g., Black Leaf 40®), but such use has decreased, partly due to nicotine's hazardous nature and the availability of less dangerous substances. Nicotine insecticides are still available at garden supply stores.

The practice of smoking tobacco is responsible for a significant proportion of the property damage and loss of life resulting from urban and forest fires. This must be included in any overall consideration of the consequences and costs to society of this drug use.

The characteristics of illicit tobacco in Canada are discussed in Appendix B.9 *Sources and Distribution of Tobacco*.

MEDICAL USE

Although tobacco was used in various folk remedies and medicines in the past, neither tobacco nor nicotine have any established medical or therapeutic value and are no longer used for any medical purpose. Nicotine has been important in neurophysiology as a tool for studying nerve transmission. Although the B vitamins niacin (nicotinic acid) and niacinamide (nicotinamide) can be made from nicotine, this is not the usual mode of production, and these vitamins have none of the pharmacological properties of nicotine.

ADMINISTRATION, ABSORPTION, DISTRIBUTION AND PHYSIOLOGICAL FATE

Today tobacco is mainly administered by inhalation. The amount of tobacco smoke inhaled by cigar and pipe smokers tends to be lower than that of cigarette smokers. In addition to being smoked, tobacco is also chewed and sniffed (as snuff). Nicotine is never injected, except in experimental situations.

Nicotine is readily absorbed from the entire respiratory tract, from oral and nasal mucosa, the entire gastrointestinal tract, and even from the skin. In fact, cases of severe poisoning have been reported after only skin contact with concentrated nicotine used as an insecticide. Approximately 15–35% of the nicotine in a tobacco cigarette is delivered to the smoker in the mainstream smoke.^{61, 100} Deep lung inhalation provides the fastest and most complete absorption and is generally preferred by chronic users. Up to 90 per cent of an inhaled dose of nicotine is absorbed in the lungs, compared to 25 to 50% in smoke drawn only into the mouth.^{10, 97} Depending on the cigarette and various smoking conditions, a smoker may absorb several milligrams of nicotine per cigarette (typically containing about one gram of tobacco).

In animals, nicotine or its metabolites concentrate initially in the central nervous system (CNS). After 30 minutes to one hour, nicotine concentration is higher in other organs such as liver, stomach, intestines, salivary glands and kidneys.⁸⁰ Nicotine crosses the placental barrier in pregnant females and a reaction to the drug can be measured in the fetus soon after the mother begins to smoke.

Approximately 80 to 90 per cent of a given dose of nicotine is metabolized in the body, mostly in the liver but also in the kidneys and lungs. Nicotine and its major metabolites are rapidly and completely eliminated in the urine. The milk of lactating mothers contains nicotine in concentrations proportional to their rate of smoking. As much as .5 mg of nicotine can be contained in each millilitre of milk of a heavy smoker.⁹⁷ Nicotine and its metabolites can be readily detected in body fluids and tissues using standard chemical techniques.^{26, 89}

PHYSIOLOGICAL EFFECTS

Acute effects

The effects of nicotine on the body are complex and often unpredictable due to the fact that nicotine has mixed stimulant and depressant actions. Thus the ultimate effect of the drug on a specific organ or system reflects a summation of various different and often opposing simultaneous effects. Nicotine is known to mimic certain effects of the neurotransmitter acetylcholine and is considered the prototype of a pharmacological class of compounds which stimulate certain basic neural functions.⁴¹ Nicotine generally produces CNS arousal, as indicated by a flattening and speeding up of the EEG pattern, while higher doses may depress activity.^{32, 70} Low doses of tobacco produce increased respiration, heart rate and blood pressure, and can decrease appetite. Constriction of the small blood vessels in the skin also results.^{15, 18, 75} Nicotine produces increased tone and motor activity in the gastrointestinal tract, occasionally resulting in diarrhea. A state of reduced gastric motility usually follows the initial stimulation phase. Increased salivary and bronchial secretions also result from nicotine administration, although the possibility exists that the increased secretion is due in part to the irritating properties of the smoke rather than the pharmacological properties of nicotine alone. Nausea and vomiting may occur in inexperienced users.^{83, 97} In some cultures when tobacco was introduced, smokers intentionally inhaled as deeply and rapidly as possible, producing unconsciousness by the combined effects of hyperventilation and nicotine intoxication.¹²

Nicotine is one of the most toxic drugs known and its speed of action can be comparable to that of cyanide. The onset of symptoms of severe nicotine poisoning is rapid, and death can occur within a few minutes. The initial symptoms are nausea and excessive salivation, followed by abdominal pain, vomiting and severe diarrhea. In advanced cases, headache, dizziness, disturbances of vision and hearing, as well as mental confusion occur. If treatment is not administered at this stage, general collapse may ensue, followed by terminal convulsions and death, usually resulting from respiratory arrest. The lethal single dose of pure nicotine for an adult is approximately 60 mg, although, as with other drugs, great individual differences exist. While overdose fatalities due to the acute use of tobacco are very rare, nicotine poisoning deaths have been reported following the accidental ingestion of insecticides containing nicotine, as well as after rectal infusions (enemas) of tobacco to combat intestinal parasites.⁹⁷

In spite of the fact that a cigarette or cigar may contain more than the lethal nicotine dose for children, few deaths have occurred following the ingestion of tobacco. This is presumably because gastric absorption of nicotine from tobacco is relatively slow, and a significant amount initially absorbed usually triggers vomiting, which removes the remaining tobacco from the stomach. Tobacco is one of the more common causes of poisoning among

children. According to the *Federal Poison Control Program Statistics*, toxic reactions attributed to tobacco products in Canada numbered 547 in 1969, 474 in 1970 and 478 in 1971.^{21, [t]} More than 90 per cent of these cases involved children under five years of age.

Chronic effects

While the main acute poisoning effects of tobacco can be attributed almost exclusively to nicotine action, the chronic, long-term health consequences of tobacco consumption are also a function of the tars and many other irritants which are present in tobacco and tobacco smoke. For example, nicotine itself is probably not the causal factor in cancer.⁵⁸ Cigarette smoke contains a number of carcinogenic substances including phenols, acids, aldehydes, and ketones, as well as irritant gases like carbon monoxide, acetaldehyde, acrolein, and hydrogen cyanide.^{22, 101, 102} The clearest relation between cigarette smoking and health is that smokers have an increased overall mortality rate—an observation made in numerous studies in different parts of the world, independent of variations in diagnosis.^{22, 46, 77, 94}

The 1969 Report of the United States Department of Health, Education, and Welfare indicated that the life expectancy of young men who smoke over two packs of cigarettes a day is reduced by a mean of eight years, while the life expectancy of those who smoke less than half a pack per day is reduced by a mean of four years.⁹⁴ After reviewing a massive amount of evidence, the authors concluded that significant correlations exist between cigarette smoking and general mortality, cardiovascular diseases, chronic obstructive bronchopulmonary diseases, cancer, several non-cancerous oral diseases, and reduction in birth weight of infants born to mothers who smoke during pregnancy. The 1972 report⁹⁶ added gastrointestinal disorders and allergies to this list. In addition, a public health problem is created by air pollution caused by tobacco smoke. The level of carbon monoxide in a smoke-filled room may exceed the legal limits for maximum air pollution allowed in some localities. Such conditions can adversely affect both smokers and non-smokers, in addition to often being decidedly unpleasant to the non-users present.

According to the 1971 report of the Royal College of Physicians of London, cigarette smokers are about twice as likely to die in middle age as non-smokers.⁷⁷ Those who quit smoking run a steadily diminishing risk of dying from its effects. The diseases to which smokers are most vulnerable are not only often fatal, but can otherwise cause illness and disability and decrease the smoker's chances of enjoying a healthy retirement.

The 1969 Canadian Report of the Standing Committee on Health, Welfare and Social Affairs on Tobacco and Cigarette Smoking accepted the findings of studies which showed that cigarette smokers have increased risks of lung cancer, chronic bronchitis and emphysema, and coronary heart disease, and that cigarette, pipe and cigar smoking have been linked to less

common diseases like cancers of the mouth, esophagus, and larynx.²² They also noted a positive relationship between cigarette smoking by pregnant women and the incidence of premature birth, spontaneous abortion, still birth, and neonatal death. They stated that:

. . . It is impossible to escape the conclusion reached by the overwhelming majority of health authorities and organizations throughout the world that cigarette smoking is one of the most important preventable causes of disease, disability and death in countries like Canada.²³

They concluded that the avoidance of cigarette smoking is the most effective way to prevent most cases of lung cancer, chronic bronchitis and emphysema, and that it is probably the most practical step to reduce the risk of a heart attack in cases of coronary heart disease. Furthermore, they noted that:

There can be no question that if cigarettes were a food or drug [*sic*] or being newly marketed, their sale would have to be prohibited or strongly regulated on the basis of evidence now available, the known constituents of the smoke and the express purpose for which they are sold.²⁴

The vasoconstrictive effect of smoking can have an especially detrimental effect on persons suffering from certain cardiovascular diseases such as arteriosclerosis, and, under some circumstances, may be a contributing factor in the development of gangrene.^{17, 53} Furthermore, chronic heavy smoking has been associated with increased wrinkling of facial skin.³⁰

In Canada, the Department of National Health and Welfare attributed approximately 13,800 deaths in the year 1966 to chronic tobacco smoking.²² It is clear that tobacco and alcohol are the leading causes of drug-related morbidity and death in our society. No other drugs are significant factors in comparison.

PSYCHOLOGICAL EFFECTS

No clear, concise picture of the effects of tobacco smoking or administration of nicotine upon psychological functioning exists. Tobacco effects may be very different for experienced users as compared to novices. Nicotine is usually classified as a stimulant, yet paradoxically, regular users most often report that they use tobacco because of its pleasurable relaxing or tranquilizing effects.⁵¹ Since the physiological response to nicotine, as described above, is quite complex, it is not surprising that confusion exists about psychological effects. It should also be noted that the psychological and physiological effects of pure nicotine may not be exactly the same as those produced by crude tobacco.

As a test of the proposed stimulant effect of nicotine upon human intellectual and motor performance, Heimstra and associates compared the performance of smokers, non-smokers and deprived smokers in the operation of

a simulated driving device.⁴⁸ They found no significant differences between smokers and non-smokers on the various measures involved. The smokers going through withdrawal, however, showed significantly more tracking and vigilance errors than the other two groups. Other findings may also be related to driving safety. Of possible relevance to night driving is a reported decrease in light sensitivity in the dark adapted eyes of subjects after smoking standard cigarettes.⁸² In addition, carbon monoxide alone in levels typically absorbed by heavy cigarette smokers may have detrimental effects on certain psychomotor abilities.^{11, 81, 98} It has been shown that smokers have higher crash rates than non-smokers, although such a correlation does not necessarily demonstrate a causal relationship.²

Both common experience and laboratory studies indicate that nicotine and tobacco smoke possess strong reinforcing properties, in that they will be repeatedly self-administered by both humans and laboratory animals.^{42, 59} Monkeys prepared with chronic intravenous catheters will spontaneously begin to self-administer nicotine.³¹ In addition, some monkeys will learn to puff on lighted cigarettes. It is interesting to note that in one study pretreatment with oral doses of nicotine did not dramatically reduce the number of cigarettes smoked by experienced human subjects,⁶⁰ although, in other experiments, intravenous nicotine lowered cigarette consumption.^{66, 79} Varying the nicotine content of cigarettes sometimes, but not always, produces predictable changes in the rate of smoking.^{3, 36, 39, 43, 79} Some heavy smokers reportedly crave the sensation of deep lung inhalation. Much data suggest that although the maintenance of tobacco smoking is primarily due to the effects of nicotine, there is a large learned component to cigarette smoking by humans which is to some extent independent of the pharmacological properties of nicotine. This effect may be analogous to the reinforcing or reward characteristics of the hypodermic syringe which often develops in chronic intravenous users of heroin, amphetamines or barbiturates, as discussed elsewhere in this report.

Much has been written in the psychiatric literature on the oral gratification involved in most tobacco use. In an extensive study of the use of heroin and other dependence-producing drugs in Canada, Stevenson and associates summarized the psychoanalytic position as follows:

Psychoanalysis has emphasized that the mouth, tongue and lips are highly erogenous zones, not only for love-making in its various forms, but from earliest infancy in the taking of food. The crying infant ceases to cry the moment his lips encircle the mother's nipple, his whole body relaxes, he obviously gets great contentment long before the nourishment actually relieves his hunger. This close oral relationship between the lips and relief from distress carries over from the infantile nursery period to adult years. At any age, something between the lips and the mouth tends to relieve tension and anxiety, whether it be solid food and drink . . . (or) chewing gum, a toothpick, a cigarette, cigar or pipe.⁸⁸

Although such arguments are often ridiculed, there exists some scientific evidence supporting the oral-erotic hypothesis, and, for example, linking severity of cigarette use with infantile weaning experiences.⁶⁷ Many heavy smokers, in a simpler fashion, merely say they smoke because they need 'something to do with their hands'.

In the past, psychological damage due to tobacco use has been the subject of much controversy. In summarizing the Canadian 'tobacco debate' which took place in the first decade of this century, Cook quoted the following different statements made in the House of Commons and the Senate regarding the physiological, psychological and social effects of tobacco:

There is scarcely a town or city in Canada where you will not find boys, the sons of respectable parents, who have not dwarfed their bodies, ruined their intellect and damaged their moral perceptions to such an extent that they do not know the difference between right and wrong, and consequently many of them have had to be sent to reformatories.

It is found that 9/10 of those [in the elementary schools] who lag behind, are cigarette smokers, and many of these are brilliant youths who otherwise would be ahead in their classes. In our high schools it is even worse, and the boys who make the failures there are most certainly those who are addicted to the use of cigarettes.

These young people became 'moral and physical wrecks'. . . . A Quebec judge was quoted to the effect that 'all children that he was obliged to condemn to gaol, or the reformatory school had their fingers stained by smoking so many cigarettes'.²⁸

Over the years, no permanent psychological damage has been scientifically demonstrated to result from the use of tobacco, although an association between chronic use and poor academic performance, anti-social tendencies, and various other personal and social disabilities has been frequently documented.^{6, 7, 63, 74, 85, 99} It would appear that in certain populations, delinquents and various maladjusted individuals are more apt to use tobacco (and other drugs), although no causal relationship between tobacco use and anti-social behaviour is now considered likely.

TOLERANCE AND DEPENDENCE

Some tolerance to nicotine develops in regular tobacco smokers. These individuals seem to be unaffected by quantities of the drug which would produce marked toxic reactions in the novice.⁹⁷ Regular use usually results in a tendency to increase dose. Some heavy users have been known to 'chain smoke', and deeply inhale several packs of cigarettes a day and, consequently, except when asleep, are never without significant quantities of nicotine in their tissues.⁵⁴ Spiralling increases in dose do not always occur, however, and many chronic users are able to stabilize their consumption of the drug at some intermediate level. Most persons who smoke at all use tobacco daily.^{20, 27}

There is a consensus among experts that psychological dependence does develop to tobacco.^{16, 49, 56, 58} In fact, in the sense that it produces cravings, repeated and compulsive self-administration, and preoccupation with obtaining the drug, it is probably the most clear-cut and common example of 'psychic dependence' as the term is defined by the World Health Organization.³³ The nature of the physical dependence component in chronic tobacco use is less clear.⁶² Although no severe physiological withdrawal symptoms have been described, restlessness, nervousness, sleep disturbance, sweating, gastrointestinal changes, fall in heart rate and blood pressure, irritability, headache, EEG changes, inability to concentrate, tremors and weight gain have been reported in early abstinence. Furthermore, as mentioned earlier, impaired psychomotor performance during tobacco withdrawal has been demonstrated.^{16, 48, 79, 92}

The strength or persistence of tobacco dependence is well known. The recent Consumers Union Report makes a strong case that tobacco should be considered an "addicting drug", and that tobacco dependence is almost exclusively a chronic condition.¹⁶ The majority of those who smoke more than a few cigarettes become regular users, and very few people who have ever become daily smokers are able to quit tobacco permanently. The pattern of relapse displayed by heavy users attempting to stop smoking, is quite similar to that seen with persons dependent on opiate narcotics and alcohol.⁵⁰ Because of the high frequency of relapse among cigarette smokers after withdrawal, it would appear that positive reward aspects, as well as the avoidance of unpleasant withdrawal symptoms, are important in motivating continued use. Most ex-smokers claim that they are never really free from the desire to use the drug—even after years of abstinence, the smell of burning tobacco reportedly can produce strong cravings in some individuals. Relapse during periods of psychological stress commonly occurs.

As with other drugs, tolerance and dependence seem to develop most rapidly and strongly when the frequency and quantity of use is high. In addition, the longer tobacco is used the more difficult it is to break the habit.¹² In an English report, it was noted that only 15% of adolescents who smoked more than one cigarette avoided becoming regular users, and only 15% of smokers stopped permanently before the age of 60.⁷⁹ Intermittent or occasional cigarette use only occurred in about 2% of smokers.

The difficulty some smokers experience in giving up tobacco can be illustrated by the experience at Synanon, the therapeutic community primarily concerned with heroin dependents. In 1970, when tobacco smoking was banned at Synanon, many members of the community reported depression and irritability lasting several months. During the six-month period following the ban, about 100 people left Synanon rather than give up cigarettes. The opinion was voiced that it was easier to quit heroin than tobacco.⁷²

In Germany, following World War II, tobacco was rationed to two packs per month for men and one pack per month for women. Many smokers

traded their food rations for tobacco, bought tobacco on the black market, begged for tobacco (but not for other restricted items), and picked up cigarette butts from the street, rather than give up smoking.⁸

A small study of regular daily users of both tobacco and marijuana suggests some differences in the type of dependence which can develop with these two drugs—at least with the present North American conditions.⁶⁸ Subjects were asked which one drug they would prefer to use if they had to abstain from either marijuana or tobacco for different periods of time. In the long run, all subjects preferred marijuana, and would choose to quit tobacco; when the required 'abstinent time' was reduced to a day or less, almost all chose to use tobacco, since they felt it would be easier to do without marijuana for short periods than to go through the acute discomfort of tobacco withdrawal. Generally similar results were obtained in a Commission study of adult users of cannabis, tobacco and alcohol.⁴⁵ Whether or not behaviour would actually coincide with these attitudes was not demonstrated. In addition, if marijuana were as freely available as tobacco, the patterns of preference or dependence might be altered.

Limited cross-tolerance and perhaps cross-dependence between nicotine and related drugs develops. Tablets containing a nicotine-like alkaloid, lobeline (Nikoban®), are sold in Canada to help block the craving for tobacco in persons who are attempting to quit. Although the efficacy of such chemotherapy has not been confirmed, lobeline is commonly used by itself and to supplement other treatments in tobacco withdrawal clinics.³⁴ These practices are analogous to the chemotherapy maintenance programs used in the management of other forms of drug dependence. Many former heavy cigarette smokers have compromised and have settled for non-inhalation use of a pipe or cigars.

TOBACCO AND OTHER DRUGS

Tobacco has apparently been closely linked with the use of other drugs in most societies over the past few centuries. In many cultures soon after tobacco was introduced, other substances, including henbane, datura, mulberry, sumac and a variety of other leaves, hashish, and even coals and woodchips were commonly smoked when the preferred tobacco was not available.^{12, 91} Blum has presented considerable evidence that before the world-wide 'epidemic' spread of tobacco use, the intentional inhaling of the smoke from burning substances, as a mode of drug administration, was not popular in most parts of the world.¹² The smoking of opium in China and India, for example, was common only after tobacco was introduced to the Orient, and for some time opium was smoked in conjunction with tobacco. Cannabis, even today, is rarely smoked alone in Eastern countries. In India, hashish and marijuana are invariably mixed with tobacco for smoking.^{25, 52} The smoking of cannabis was not common before tobacco was introduced.

It would appear then, that although these drugs were previously taken orally, the past and present practices of smoking cannabis and opium in most cultures is directly and causally linked with the assimilation of tobacco smoking practices from the Western Hemisphere.

A direct causal relationship between tobacco smoking and marijuana use in North America was suggested sometime ago by Rowell, who worked closely with the United States Bureau of Narcotics in the 1930s:

Slowly, insidiously, for over three hundred years, Lady Nicotine was setting the stage for a grand climax. The long years of tobacco using were but an introduction and training for marijuana use. Tobacco, which was first smoked in a pipe, then as a cigar, and at last as a cigarette, demanded more and more of itself until its supposed pleasures palled, and some of the tobacco victims looked about for something stronger. Tobacco was no longer potent enough.⁷⁰

In North America, marijuana use has traditionally been closely tied to tobacco use and there seem to be relatively few regular cannabis smokers who did not initially learn the technique of inhaling smoke from prior experience with tobacco cigarettes. While the smoking of tobacco leaf does not necessarily precede or lead to the similar use of cannabis leaf, the temporal sequence is commonly observed and must be considered in any serious investigation of the proliferation of drug use today. A pharmacological 'progression' is not considered likely, however, since there is no scientific evidence that one drug creates a need for the other.

Because the inhalation of smoke is initially difficult and unpleasant for the novice, and usually requires considerable practice and control of natural reflexes, the problems of learning the technique of smoking might be considered a general barrier against this mode of drug administration. Many observers feel that after one has acquired the seemingly unnatural and originally offensive practice of smoke inhalation, and learned that the effects can be rewarding or pleasurable, the general 'smoking barrier' is removed and the smoker is then more likely to try smoking other drugs than is a non-smoker.^{12, 38} The drug smoking associations discussed above tend to support such an hypothesis.

Stevenson and associates found considerably more heavy tobacco use among heroin dependents than in other members of a prison population in British Columbia.⁸⁸ In addition, heroin users claimed that cigarettes became more desirable after they began the use of heroin. A British report summarized data indicating that 92% of alcoholics and 99% of heroin addicts were tobacco smokers compared to 58% of the general population.⁷⁹ Heavy alcohol use is usually linked with similar patterns of tobacco consumption and the interaction of chronic alcohol and cigarette use has been linked with certain physical disorders.⁹⁵ In addition, the smoking of cigarettes may enhance the detrimental effects of alcohol on psychomotor coordination.^{55, 73}

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The common morning routine of coffee and a cigarette suggests that there is some rewarding interaction between nicotine and caffeine. It has also been noted that persons who do not use tobacco are also more likely to abstain from caffeine.⁶⁷ In general, tobacco users are more likely to take a wide variety of other licit and illicit drugs than are non-users.^{44, 78, 86, 99} (See also Appendix C *Extent and Patterns of Drug Use*.)

ANNEX

This annex consists of the following tables:

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TABLE A.5

DRUG DEPENDENCE DIAGNOSES OF FIRST ADMISSIONS AND READMISSIONS TO PSYCHIATRIC WARDS AND INSTITUTIONS IN CANADA, 1970-1971*

Drug Dependence Diagnosis	ICDA Code†	1970			1971		
		First Admissions‡	Readmissions§	Total	First Admissions	Readmissions	Total
Alcohol							
Alcoholism.....	303	7,583 (14.71%)	9,379 (18.69%)	16,962 (16.68%)	9,426 (16.39%)	7,909 (15.39%)	17,335 (16.26%)
Alcoholic Psychosis.....	291	712 (1.39%)	598 (1.20%)	1,310 (1.29%)	645 (1.81%)	593 (1.92%)	1,238 (1.16%)
Total Alcohol.....	291, 303	8,295 (16.09%)	9,977 (19.88%)	18,272 (17.97%)	10,071 (17.48%)	8,502 (16.48%)	18,573 (17.43%)
Other Sedative-Hypnotics							
Barbiturates.....	304.2	65 (0.12%)	84 (0.16%)	149 (0.15%)	66 (0.11%)	60 (0.11%)	126 (0.12%)
Minor Tranquilizers & Non-Barbiturates ...	304.3	41 (0.07%)	58 (0.11%)	99 (0.10%)	51 (0.09%)	33 (0.06%)	84 (0.08%)
Stimulants							
Amphetamine & Re- lated Drugs.....	304.6	176 (0.35%)	95 (0.18%)	271 (0.27%)	235 (0.41%)	148 (0.29%)	383 (0.36%)
Cocaine.....	304.4	2 (0.00%)	0 (0.00%)	2 (0.00%)	1 (0.00%)	3 (0.00%)	4 (0.00%)
Hallucinogens							
Cannabis.....	304.5	33 (0.06%)	5 (0.00%)	38 (0.04%)	21 (0.03%)	7 (0.01%)	28 (0.03%)
LSD & Related Drugs..	304.7	226 (0.43%)	71 (0.15%)	297 (0.29%)	142 (0.26%)	62 (0.12%)	204 (0.19%)
Opiate Narcotics							
Natural & Semi-Syn- thetic.....	304.0	103 (0.20%)	46 (0.10%)	149 (0.15%)	105 (0.18%)	74 (0.14%)	179 (0.17%)
Synthetic.....	304.1	29 (0.05%)	33 (0.06%)	62 (0.07%)	34 (0.06%)	26 (0.06%)	60 (0.06%)
Total.....		132 (0.25%)	79 (0.15%)	211 (0.21%)	139 (0.25%)	100 (0.20%)	239 (0.22%)

Other (Solvents, Anal- gesics & Other Drugs). 304.8	91 (0.17%)	55 (0.10%)	146 (0.14%)	165 (0.29%)	135 (0.26%)	300 (0.28%)
Unspecified Drugs..... 304.9	525 (1.01%)	297 (0.60%)	822 (0.81%)	461 (0.81%)	350 (0.69%)	811 (0.77%)
Total Non-Alcohol..... 304	1,291 (2.50%)	744 (1.48%)	2,035 (2.01%)	1,281 (2.15%)	898 (1.40%)	2,179 (2.04%)
Total All Drug Dependence..... 291, 303 304	9,586 (18.60%)	10,721 (21.36%)	20,307 (19.97%)	11,352 (20.11%)	9,400 (18.74%)	20,752 (19.47%)
Total All Psychiatric Diagnoses.....	51,527 (100%)	50,180 (100%)	101,707 (100%)	56,444 (100%)	50,144 (100%)	106,588 (100%)

* Based on a detailed analysis of data (summarized in the annual *Mental Health Statistics*), which were provided to the Commission by R. Riley (Mental Health Section, Statistics Canada). See text of Appendix A *The Drugs and Their Effects* for discussion of the data. (See also Table A.6 and note *e* at the end of this appendix.)

† International Classification of Diseases, 8th Revision.

‡ First admissions are defined as the number of patients admitted for the first time in their lives to a psychiatric inpatient facility. Percentages are based on the total first admissions for all diagnoses, (i.e., drug and non-drug related cases)

§ Readmissions are counts of events, and are not necessarily individual persons; for example, one patient admitted and released four times in a year would be counted as four admissions. Percentages are based on the total readmissions for all diagnoses.

|| Sum of first admissions and readmissions. Percentages are based on the total admissions for all diagnoses.

TABLE A.6
 DRUG-RELATED DIAGNOSES OF PSYCHOSIS OR OTHER MENTAL DISORDER OF FIRST ADMISSIONS AND READMISSIONS
 TO PSYCHIATRIC WARDS AND INSTITUTIONS IN CANADA, 1971*

Drug Related	Drug-Related Psychosis (ICDA†-294.3)			Other Drug-Related Mental Disorders (ICDA-309.1)			Total (ICDA-294.3 & 309.1)		
	First Admis- sions‡	Re- admis- sions§	Total	First Admis- sions	Re- admis- sions	Total	First Admis- sions	Re- admis- sions	Total
Sedative-Hypnotics									
Barbiturates.....	8	6	14	18	14	32	26	20	46
Minor Tranquilizers & Non-Barbitu- rates.....	13	13	26	21	16	37	34	29	63
Total.....	21	19	40	39	30	69	60	49	109
Stimulants									
Amphetamine & Related Drugs.....	34	21	55	7	7	14	41	28	69
Cocaine.....	—	—	—	—	—	—	—	—	—
Total.....	34	21	55	7	7	14	41	28	69
Hallucinogens									
Cannabis.....	5	5	10	—	1	1	5	6	11
LSD & Related Drugs.....	59	27	86	13	3	16	72	30	102
Total.....	64	32	96	13	4	17	77	36	113

Opiate Narcotics	4	2	6	2	—	2	6	4	4	8
Natural & Semi-Synthetic.....	1	—	1	2	1	3	3	1	3	4
Synthetic.....										
Total.....	5	2	7	4	1	5	9	3	5	12
Other (Solvents, Analgesics & Other Drugs).....	13	14	27	24	10	34	37	24	26	61
Unspecified Drugs.....	322	186	508	257	130	387	579	316	471	895
TOTAL.....	459	274	733	344	182	526	803	456	687	1,259
Percent of all Diagnoses#.....	0.81%	0.54%	0.69%	0.61%	0.36%	0.49%	1.42%	0.90%	0.64%	1.18%

* Based on analysis of preliminary detailed data (undifferentiated in the annual *Mental Health Statistics*) which were provided to the Commission in 1973 by R. Riley (Mental Health Section, Statistics Canada). Detailed data from Quebec and Saskatchewan are incomplete. These statistics were received by the Commission too late for discussion to have been included in the text. Some additional cases of drug-related mental disorder are undoubtedly included undifferentiated in ICDA-309.9. (See also note *e* at the end of this appendix.) See Table A.5 for drug dependence diagnoses.

† International Classification of Diseases, 8th Revision.

‡ First admissions are defined as the number of patients admitted for the first time in their lives to a psychiatric inpatient facility.

§ Readmissions are counts of events, and do not necessarily represent individual persons.

|| See Table A.5 for alcoholic psychoses.

Based on the total first admissions (56,444), readmissions (50,144), and the total of all admissions (106,588) for all psychiatric diagnoses in 1971.

TABLE A.7

PSYCHIATRIC HOSPITAL RESIDENT PATIENTS WITH DRUG-RELATED DIAGNOSES
IN CANADA, MAY 1971*

Drug Related	Primary Factor	Secondary Factor	Total
Alcohol†.....	987 (4.31%)	180 (0.78%)	1,167 (5.10%)
Barbiturates.....	46 (0.20%)	22 (0.10%)	68 (0.29%)
Amphetamines.....	19 (0.08%)	9 (0.03%)	28 (0.12%)
Cannabis.....	20 (0.09%)	20 (0.09%)	40 (0.17%)
LSD & Related Drugs.....	67 (0.29%)	14 (0.06%)	81 (0.35%)
Opiate Narcotics.....	20 (0.09%)	4 (0.01%)	24 (0.11%)
Other.....	134 (0.58%)	36 (0.15%)	170 (0.74%)
Total.....	1,293 (5.65%)	285 (1.25%)	1,578 (6.90%)

* Hemmings, B., & Miller, R. D. Non-medical drug use as a factor in hospitalization: A survey of Canadian psychiatric hospital records. (Unpublished Commission research project, 1971.) In May 1971, all psychiatric hospitals in Canada were surveyed with the exception of those specializing in the treatment of alcoholism, emotionally disturbed children, mental defectives, and aged or senile patients. Rehabilitation hospitals and general hospitals with psychiatric wards were excluded as well. Only those patients actually in residence on the day of the survey were included. Each patient appears only once in this table. Percentages are based on the total inpatient resident population (22,885) of the 51 respondent hospitals. Only three psychiatric hospitals were unable to provide residential data. See the text of this appendix and pages 88-90 of the *Cannabis Report* for discussion.

† Since institutions specializing in the treatment of alcoholism were purposely excluded from this survey, these figures represent a gross underestimate of the total alcohol-related psychiatric patient population.

TABLE A.8
ALLEGED AND IDENTIFIED CONSTITUENTS OF 'STREET DRUG' SAMPLES IN CANADA, 1971-1972*
PART I: BY ALLEGED IDENTITY

ALLEGED TO BE			IDENTIFIED AS			
A. SINGLE DRUGS	No. of Samples	% of Total A.§	Same As Alleged	Alleged Drug & Other(s)	Non-Alleged Drug(s)	No Drug
Cannabis†.....	145	20.3	111 (76.6%)	1 (0.7%)	3 (2.0%)	30 (20.7%)
Cocaine.....	7	0.1	3 (42.9%)	1 (14.3%)	2 (28.6%)	1 (14.3%)
Heroin.....	18	2.5	9 (50.0%)	—	3 (16.7%)	6 (33.3%)
LSD.....	162	22.7	111 (68.5%)	23 (14.2%) impurities† barbiturates other(s)	8 7 8	14 (8.6%)
MDA.....	64	9.0	27 (42.2%)	13 (20.3%) impurities† other(s)	9 4	7 (11.0%)
Mescaline.....	171	24.0	5 (3.0%)	—	135 (78.9%) LSD LSD & PCP PCP STP methamphetamine LSD & LSA other (s)	43 33 18 11 9 3 18

TABLE A.8 — Continued

ALLEGED TO BE			IDENTIFIED AS			
A. SINGLE DRUGS	No. of Samples	% of Total A. §	Same As Alleged	Alleged Drug & Other(s)	Non-Alleged Drug(s)	No Drug
Methamphetamine.....	86	12.1	30 (34.9%)	33 (38.4%) barbiturate amphetamine impurities† PCP MDA other(s)	17 (19.8%) MDA other (s)	6 (7.0%) 4 13
Psilocybin.....	32	4.5	—	1 (3.1%)	20 (62.5%) LSD other(s)	11 (35.0%) 15 5
PCP.....	2	1.0	1 (50.0%)	1 (50.0%)	1 (50.0%)	—
THC.....	26	3.6	—	—	21 (80.8%) PCP other (s)	5 (19.2%) 18 3
TOTAL A.....	713	100%	296 (41.5%)	73 (10.2%)	233 (32.7%)	111 (15.6%)

B. DRUG MIXTURES	No. of Samples	% of Total B.	Same As Alleged	One of Alleged Drugs	Non-Alleged Drug(s)	No Drug
Cannabis & Opiate.....	6	11.5	—	6 cannabis opiate	—	—
Cannabis & PCP.....	3	5.8	1	cannabis	—	—
Cannabis & Other.....	3	5.8	—	cannabis	—	—
Heroin & MDA.....	3	5.8	—	MDA	LSD & impurity†	—
Heroin & Methamphetamine.....	5	9.6	—	3 methamphetamine & impurity† methamphetamine & PCP	2 MDA PCP	—
LSD & MDA.....	3	5.8	—	LSD	—	—
LSD & Other.....	7	13.5	1	LSD	—	—
Mandrax®.....	5	9.6	—	methaqualone	—	—
MDA & Harmaline.....	4	7.7	—	MDA	—	—
MDA & Other.....	2	3.8	—	MDA	1	—
Mescaline & Other	4	7.7	—	—	LSD &/or PCP	1
Methamphetamine & Other.....	4	7.7	—	methamphetamine	1	1
Other.....	3	5.8	—	tobacco	LSD	1
TOTAL B.....	52	100%	2 (3.8%)	38 (73.1%)	9 (17.3%)	3 (5.8%)

TABLE A.8 — Continued

C. UNSPECIFIED SUBSTANCES	No. of Samples			Identified Drugs	No Drug
	215	—	—	150 (69.8%) LSD methamphetamine cannabis MDA methaqualone ASA LSD & PCP barbiturate PCP tetraacycline tobacco phenmetrazine methamphetamine & PCP other (s)	65 (30.2%) 25 18 11 10 8 8 7 4 4 4 3 3 3 42
GRAND TOTAL.....	980				

* Data from Miller, R. D., Oestreicher, P., Marshman, J., Beckstead, H., Paterson, R. and associates. Chemical analysis of illicit drugs in Canada (Commission Research Project, 1972). A drug-by-drug discussion of the data is presented in the text. See note c at the end of this appendix for further description of this study. With the exception of alleged mixtures (Section B), generally only those drugs reported three or more times are identified here; the remainder are unspecified or appear as "others". (See also Table A.9.)

† For detailed information on marijuana and hashish, see Tables 1 and 2 of the *Cannabis Report*.

‡ Substance considered inherent to the synthesis or degradation of the primary drug.

§ Per cent of the total number (713) of alleged single drugs reported.

|| Per cent of the total number (52) of alleged drug combinations reported.

TABLE A.9
ALLEGED AND IDENTIFIED CONSTITUENTS OF 'STREET DRUG' SAMPLES IN CANADA, 1971-1972*
PART II: BY CHEMICAL IDENTIFICATION

IDENTIFIED AS			ALLEGED TO BE				
A. SINGLE DRUGS	No. of Samples	% of Total A. §	Same As Identified		Identified Drugs & Other(s)	Other(s)	Not Specified
ASA.....	13	2.0	—		—	5 (38.5%)	8 (61.5%)
Amphetamine.....	8	1.2	—		—	7 (87.5%)	1 (12.5%)
Barbiturate.....	8	1.2	—		—	4 (50.0%)	4 (50.0%)
Cannabis†.....	136	20.9	111 (81.6%)		10 (7.4%)	4 (2.9%)	11 (8.1%)
Chlordiazepoxide.....	4	0.6	—		—	2 (50.0%)	2 (50.0%)
Cocaine.....	5	0.8	3 (60.0%)		—	1 (20.0%)	1 (20.0%)
Heroin.....	9	1.4	9 (100.0%)		—	—	—
LSD.....	208	31.8	111 (53.4%)		9 (4.3%)	63 (30.3%) mescaline psilocybin other(s)	25 (12.0%) 43 15 5
MDA.....	52	8.0	27 (51.9%)		7 (13.5%)	8 (15.4%) methamphetamine other(s)	10 (19.2%) 4 4

TABLE A.9 — Continued

IDENTIFIED AS			ALLEGED TO BE				
A. SINGLE DRUGS	No. of Samples	% of Total A. §	Same As Identified		Identified Drugs & Other(s)	Other(s)	Not Specified
Mescaline.....	6	0.9	5 (83.3%)		—	—	1 (16.7%)
Methamphetamine.....	62	9.5	30 (48.4%)		2 (3.2%)	12 (19.4%) mescaline other(s)	18 (29.0%) 9 3
Methaqualone.....	15	2.3	—		5 (33.3%)	2 (13.3%)	8 (53.4%)
PCP.....	47	7.2	—		—	43 (91.5%) mescaline THC other(s)	4 (8.5%) 18 18 7
Quinine.....	3	0.5	—		—	3 (100.0%)	—
STP.....	13	2.0	—		—	11 (84.6%) mescaline	2 (15.4%)
Tetracycline.....	4	0.6	—		—	—	4 (100.0%)
Tobacco.....	5	0.8	—		1 (20.0%)	1 (20.0%)	3 (60.0%)
Others.....	54	8.3	—		1 (1.8%)	23 (42.6%)	30 (55.6%)
TOTAL A.....	652	100.0%	296 (45.4%)		35 (5.4%)	183 (29.0%)	132 (20.2%)

B. DRUG MIXTURES	No. of Samples	% of Total B.	Same as Identified	One of Identified	An Identified drug & Other(s)	Other(s)	Not Specified
Amphetamine & methamphetamine.....	6	4.0	—	6 (100.0%) methamphetamine 6	—	—	—
Amphetamine & other drugs.....	6	4.0	—	5 (83.3%)	—	1 (16.7%)	—
Barbiturate & LSD.....	7	4.7	—	7 (100.0%) LSD 7	—	—	—
Barbiturate & methamphetamine.....	10	6.7	—	9 (90.0%) methamphetamine 9	—	—	1 (10.0%)
Cocaine & other drugs.....	3	2.0	—	1 (33.3%)	—	2 (66.7%)	—
LSD & impurities†.....	16	10.7	—	8 (50.0%) LSD 8	—	7 (43.8%) mescaline 4 other(s) 3	1 (6.2%)
LSD & MDA.....	3	2.0	—	3 (100.0%)	—	—	—
LSD & methamphetamine....	5	3.4	—	3 (60.0%)	—	2 (40.0%)	—
LSD & PCP.....	45	30.3	1 (2.2%)	—	—	37 (82.2%) mescaline 33 other(s) 4	7 (15.6%)

TABLE A.9 — Continued

B. DRUG MIXTURES	No. of Samples	% of Total B.	Same as Identified	One of Identified	An Identified drug & Other(s)	Other(s)	Not Specified
LSD & other drugs.....	5	3.4	—	LSD 5 (100.0%)	—	—	—
MDA & methamphetamine.	4	2.7	—	3 (75.0%) methamphetamine	—	—	1 (25.0%)
MDA & impurities†.....	9	6.0	—	9 (100.0%) MDA	—	—	—
Methamphetamine & PCP....	7	4.7	—	3 (42.9%) methamphetamine	1 (14.2%)	—	3 (42.9%)
Methamphetamine & other drugs or impurities†.....	13	8.7	—	7 (53.8%) methamphetamine	2 (15.4%)	1 (7.7%)	3 (23.1%)
Opiate Narcotic combinations.....	4	2.7	—	1 (25.0%)	—	1 (25.0%)	2 (50.0%)
Miscellaneous combinations	6	4.0	1 (16.7%)	3 (50.0%)	—	2 (33.3%)	—
TOTAL B.....	149	100%	2 (1.3%)	73 (49.0%)	3 (2.0%)	53 (35.6%)	18 (12.1%)

C. NO DRUG	No. of Samples	% of Grand Total				Alleged Drugs	No Drug
	179	18.3				114 (63.7%) cannabis 30 mescaline 31 LSD 14 psilocybin 11 MDA 7 methamphetamine 6 heroin 6 THC 5 other drugs 4	65 (36.3%)
GRAND TOTAL.....	980		298 (30.4%)	73 (7.4%)	38 (3.9%)	356 (36.4%)	215 (21.9%)

* Data from Miller, R. D., Oestreicher, P., Marshman, J., Beckstead, H., Paterson, R., and associates. Chemical analysis of illicit drugs in Canada (Commission Research Project, 1972). A drug-by-drug discussion of the data is presented in the text. (See note c at the end of this appendix for further description of this study.) Generally, only those drugs reported three or more times are identified here; the remainder are unspecified or appear as "others". (See also Table A.8.)

† For detailed information on marijuana and hashish, see Tables 1 and 2 of the *Cannabis Report*.

‡ Substances considered inherent to the synthesis or degradation of the primary drug.

§ Per cent of the total number (652) of single drugs identified.

|| Per cent of the total number (149) of drug combinations identified.

TABLE A.10

POLICE SEIZURE EXHIBITS ANALYSED BY THE HEALTH PROTECTION BRANCH LABORATORIES,
APRIL 1970-MARCH 1973*

	1970-1971	1971-1972	1972-1973
<i>Sedative Hypnotics</i>			
Barbiturates.....	248 (1.16%)	233 (0.88%)	339 (0.85%)
Chlordiazepoxide.....	42 (0.20%)	56 (0.21%)	NS†
Diazepam.....	26 (0.12%)	78 (0.30%)	NS
Methaqualone.....	23 (0.11%)	84 (0.32%)	NS
Others.....	11 (0.05%)	10 (0.04%)	NS
<i>Stimulants</i>			
Amphetamine.....	65 (0.30%)	77 (0.29%)	68 (0.17%)
Methamphetamine.....	600 (2.81%)	1,138 (4.32%)	1,640 (4.12%)
Phenmetrazine.....	79 (0.37%)	157 (0.60%)	47 (0.12%)
Methylphenidate.....	3 (0.01%)	6 (0.02%)	NS
Diethylpropion.....	3 (0.01%)	16 (0.06%)	NS
Cocaine.....	29 (0.14%)	76 (0.29%)	202 (0.51)%
<i>Hallucinogens</i>			
Cannabis			
Marijuana.....	6,594 (30.86%)	8,067 (30.62%)	13,933 (35.04%)
Hashish.....	6,238 (29.20%)	6,824 (25.90%)	9,640 (24.24%)
THC.....	0 (0.00%)	0 (0.00%)	0 (0.00%)
Total Cannabis.....	12,832 (60.06%)	14,891 (56.51%)	23,573 (59.28%)
LSD.....	2,384 (11.16%)	1,795 (6.81%)	1,601 (4.03%)
LSD & PCP†.....	23 (0.11%)	339 (1.29%)	394 (0.99%)
PCP.....	101 (0.47%)	270 (1.02%)	426 (1.07%)
MDA.....	395 (1.85%)	593 (2.25%)	1,352 (3.40%)
STP (DOM).....	11 (0.05%)	1 (0.00%)	0 (0.00%)
DMA.....	5 (0.02%)	16 (0.06%)	20 (0.05%)
LBJ.....	0 (0.00%)	41 (0.16%)	2 (0.00%)
Mescaline.....	9 (0.04%)	11 (0.04%)	NS
Psilocybin.....	0 (0.00%)	0 (0.00%)	NS
<i>Opiate Narcotics</i>			
Opium.....	7 (0.03%)	21 (0.08%)	42 (0.11%)
Morphine.....	52 (0.24%)	56 (0.21%)	45 (0.11%)
Codeine.....	48 (0.22%)	42 (0.16%)	48 (0.12%)
Heroin.....	777 (3.64%)	1,211 (4.60%)	2,566 (6.45%)
Methadone.....	58 (0.27%)	90 (0.34%)	129 (0.32%)

TABLE A.10 — Continued

	1970-1971	1971-1972	1972-1973
Pethidine.....	35 (0.16%)	31 (0.12%)	22 (0.06%)
Propoxyphene.....	19 (0.09%)	29 (0.11%)	NS
Pentazocine.....	1 (0.00%)	8 (0.03%)	NS
<i>Others</i>			
Procaine.....	5 (0.02%)	20 (0.08%)	NS
Quinine.....	9 (0.04%)	41 (0.16%)	NS
Total Specified.....	17,900 (83.7%)	21,437 (81.4%)	32,516 (81.8%)
Other exhibits.....	3,735 (17.3%)	4,912 (18.6%)	7,250 (18.2%)
Total exhibits analysed.....	21,635 (100%)	26,349 (100%)	39,766 (100%)

* From "Identity of police drug exhibits" provided to the Commission by the Computer Services Bureau of the Health Protection Branch, Ottawa. With the exception of LSD & PCP, specific combinations are generally not included in the primary summaries provided by HPB. However, except for impurities inherent in the synthesis or degradation of certain drugs, mixtures make up only a very small proportion of the total seizures. (See also note *b* at the end of this appendix.) The relative number of exhibits of each drug reflects the emphasis of primary police activity and concern, as well as the availability of the drug on the illicit market. Similarly, an increase in the annual number of seizures may reflect either an increase in illicit availability or use, or may reflect increased law enforcement activity in that sector. It is not possible to differentiate these alternatives in the available data. Many factors are likely operating.

† NS = not specified under the reporting system initiated May, 1972. Currently, only the major categories, considered by HPB to be of primary interest, are specified on the summary lists.

‡ LSD-PCP combinations are considered separately from exhibits of either LSD or PCP alone.

TABLE A.11

SOME DRUG MIXTURES OR IMPURITIES FOUND IN POLICE SEIZURES
BY HEALTH PROTECTION BRANCH LABORATORIES,
JUNE 1971–OCTOBER 1972*

Primary Drug	Other Drugs or Impurities	No. of Samples
I. Methamphetamine	(a) impurities†	132
	(b) amphetamine & impurities†	68
	(c) amphetamine	3
	(d) atropine	9
	(e) PCP & procaine	4
	(f) others	9
II. Cocaine	(a) procaine	5
III. LSD	(a) PCP	34
	(b) methaqualone & antihistamine	14
	(c) ergonovine†	12
	(d) others	3
IV. PCP	(a) ephedrine	12
	(b) LBJ & methylbenzilate†	10
	(c) others‡	5
V. MDA	(a) heroin	3
	(b) others	4
VI. Heroin	(a) impurities†	116
	(b) caffeine & impurities†	6
	(c) methaqualone & diphenhydramine	4
	(d) quinine	3
	(e) others§	11

* This table presents the major qualitative findings of a special HPB police seizure analysis program concerned with the strength and purity of illicit drugs—primarily amphetamine, LSD, PCP, MDA, and heroin (see note *b* at the end of this appendix). Combinations occurring three or more times are specified in the table; the remainder appear as "others". Samples were generally included by HPB in this special study if any indication of impurities or drug mixtures appeared in the initial analysis after seizure. However, LSD-PCP combinations are relatively so frequent that only a small proportion of these are now included (see Table A.10). Data provided to the Commission by the Field Operations Directorate, Health Protection Branch, Ottawa.

† Identified as or presumed to be substances inherent to the synthesis or degradation of the primary drug.

‡ See also I (e) and III (a) of this table. Each sample is represented only once.

§ See also V (a) of this table.

TABLE A.12

OFFICIAL NATIONAL STATISTICS ON THE MAJOR DRUG-RELATED CAUSES OF DEATH, 1971*

Drugs Related	ICDA Code†	Number
A. Single drugs		
Alcohol.....	291, 303, 571.0, N980	1,115 (69.2%)
Barbiturates.....	304.2, N967.0	309 (19.2%)
Non-Barbiturate.....	N967.1, N967.2,	
Sedative-Hypnotics	N967.3, N967.9	61 (3.8%)
Opiate Narcotics‡.....	304.0, 304.1, N965.0, N965.9, N977.9	53 (3.3%)
Salicylates (e.g., Aspirin®).....	N965.1, N977.9	77 (4.6%)
Total A.....		1,615 (100%)
B. Drug Interaction§		
Alcohol & Barbiturates.....	N979.1	144 (56.3%)
Alcohol & Non-Barbiturates.....	N979.2	29 (11.3%)
Alcohol & Opiate Narcotics.....	N979.0	20 (7.8%)
Alcohol & Others.....	N979.3, N979.4	11 (4.3%)
Barbiturates & Opiate Narcotics.....	N978.0	11 (4.3%)
Barbiturates & Others.....	N978.2, N978.4	18 (7.0%)
Non-Barbiturates & Salicylates.....	N978.3	3 (1.2%)
Opiate Narcotics & Others‡.....	N965.9, N977.9	20 (7.8%)
Total B.....		256 (100%)
C. Totals 		
Alcohol-Related.....	Specified above	1,319 (70.5%)
Barbiturate-Related.....		482 (25.8%)
Non-Barbiturate-Related.....		97 (5.2%)
Opiate Narcotic-Related.....		104 (5.6%)
Salicylate-Related‡.....		101 (5.4%)
D. GRAND TOTAL (A. & B.).....		1,871 (100%)

* Based on *Causes of death*, 1971, published by Information Canada, November, 1972. See specific drug topics in the text of this appendix for more detailed analysis and discussion of these data and their limitations. (See also note *m* at the end of this appendix.) Along with tobacco, the drugs in the five categories presented here account for the vast majority of all drug-related deaths in Canada. No other psychotropic drugs are significant factors in comparison. Although there are no recent official tobacco statistics, the Department of National Health and Welfare estimated that in 1966, 13,800 deaths occurred in Canada as a result of chronic tobacco smoking.

† International Classification of Diseases, 8th Revision.

‡ Propoxyphene and some salicylate interaction cases are from a detailed list (N965.9, N977.9) provided to the Commission by H. Page of Statistics Canada. Propoxyphene is included under opiate narcotics.

§ There is no overlap within Section B; all cases appear only once.

|| There is overlap in the drug-interaction cases included in Section C; consequently the individual drug-related percentages total more than 100%.

NOTES

[a] These samples were analysed for the Commission by H. D. Beckstead of the Pharmaceutical Chemistry Division, Health Protection Branch, Ottawa.

[b] Because of the selective nature of law enforcement and the fact that only a minute fraction of illicit drug users are ever arrested, data obtained from police drug exhibits provide an adequate basis for generalization only to those sectors of the population which are the primary subjects of police attention, and cannot be considered representative of the illicit drugs available in Canada. They may, however, be more representative than are reports from medically-oriented 'street drug' analysis facilities. (See also note c.) A summary of the major police seizures analysed by Health Protection Branch (HPB) laboratories appears in Table A.10 in the Annex to this appendix.

In June 1971, HPB initiated a special police seizure analysis program concerned with the strength and purity of illicit drugs. This special study has concentrated on synthetic and semi-synthetic drugs—mainly heroin, LSD, LSD & PCP, amphetamine, and MDA. Some qualitative data from the program are summarized in Table A.11 in the Annex to this appendix. Quantitative results are discussed on a drug-by-drug basis in the text. Although it is not possible to define the precise sampling and data base from which these figures are derived, on the basis of the first year of the program, T. Halisky (Field Operations Directorate, HPB) estimated that approximately one-tenth of police seizures contained more than a single chemical entity. More than three-quarters of the 'mixtures' contained only a primary drug and chemicals considered inherent to its synthesis or breakdown. Deliberate adulteration which is cause for concern is almost non-existent. In no instance has strychnine been found.

[c] From 1971 through the fall of 1972 the Commission surveyed all authorized 'street drug' analysis laboratories, asking for information on the alleged and identified contents of samples received, general analytic methods employed, etc. We also collected and had analysed samples which were thought to be rare or unusual drugs or combinations. In addition, many unsolicited drugs were submitted to us and were included in this study. These samples were analysed for the Commission by H. D. Beckstead, of the Pharmaceutical Chemistry Division of the Health Protection Branch in Ottawa, or by Dr. Joan Marshman and her staff at the Addiction Research Foundation in Toronto. Overall, we have reports of 980 illicit or 'street drug' samples. (This does not include our special quantitative studies of police seizures of cannabis and heroin.) The majority of the analytic reports provided to the Commission came from laboratories at the: Addiction Research Foundation, Toronto; Ontario Department of Health, Toronto; Lakeshore Psychiatric Hospital, Toronto; Institut de Recherches Psychiatriques de Joliette, Joliette; University of New Brunswick, Fredericton; St. Boniface General Hospital, St. Boniface; University of Alberta Hospital, Edmonton; and Food and Drug Directorate (now Health Protection Branch) regional laboratories and R.C.M. Police crime detection laboratories. Because of the limited sector of the illicit drug-using population which has contact with drug analysis facilities, and because samples submitted are often those associated with unusual or adverse reaction, or suspected of other oddities, these data cannot be considered representative

of the drugs generally available in Canada for non-medical use. In addition to the presentation in the text, these data are summarized in Tables A.8 and A.9 in the Annex to this appendix. See also the *Cannabis Report* (pp. 25–32).

- [d] The Commission's national survey of psychiatric hospital diagnostic records is discussed in more detail on pages 88–90 of the *Cannabis Report*. See also Table A.7 in the Annex to this appendix.
- [e] In the *Mental health statistics* published by the Federal Government, first admissions are defined as the annual number of patients admitted for the first time in their lives to a psychiatric inpatient facility. Provinces are not all consistent in this respect, however. Readmissions are counts of events, and do not necessarily represent individual persons. There are no official national statistics which provide data on individual cases or patients. As well, the *Mental health statistics* deal only with inpatients, and can provide no information on the large outpatient psychiatric population. Comparisons of the published data from year to year are complicated by minor changes in the universe of reporting hospitals. For example, in 1970 there was a net increase of ten facilities, one of which specialized in the treatment of drug-dependence problems. The International Classification of Diseases (8th revision) criteria employed for coding drug-related cases is in some instances ambiguous and inadequate, and many drug-related admissions are lumped together in large undifferentiated categories (e.g., 304.8, 294.3, 309.1 and 309.9). There are no provisions in the federal system for coding multi-drug use or drug interaction cases, which undoubtedly reflect the bulk of the drug-related admissions. Each admission appears in only one category. Often, due to incomplete or inadequate information at the hospital or provincial level, a very large proportion of the cases end up being coded in general unspecific residual categories (e.g., 304.9). In some instances, it has been possible to obtain a special detailed analysis, but this is usually not feasible once the data has been coded. (See Tables A.5 and A.6 in the Annex to this appendix.)
- [f] While the *Poison Control Program Statistics* provide a potentially valuable source of information on certain problems arising from the non-medical use of drugs, there are numerous difficulties or limitations which restrict the generality and usefulness of the data. Since the identification of the drugs involved is based almost exclusively on the verbal report of the user or his friends, rather than on chemical analysis of the substances taken or of body fluids, the drug classifications may contain errors of considerable proportions (e.g., see A.5 *Hallucinogens*). There is no way to relate symptoms to reliably identified toxic substances. There are no provisions for drug interaction cases, which likely make up a significant proportion of the total. Each instance of contact with a Poison Control facility is classified in a single drug category. Details and follow-up, in general, are frequently inadequate at the hospital level and the death reports are often incomplete. It is, of course, generally not possible to differentiate psychological adverse reactions from physical toxicity in the reports. Comparisons from year to year are limited by continual changes in the universe of participating hospitals, and by alterations in data coding and in the format of data presentation. These variables also limit inter-provincial comparison. The frequently noted trend towards an increasing number of cases related to non-medical drug use reflects an increase in the number of hospitals participating in the program, as well as possible changes in the incidence of toxic reactions in the general population.
- [g] In April 1971, the Commission contacted the Chief or Supervising Coroner, or the Registrar of Vital Statistics for each province, requesting information on deaths related to non-medical drug use. In many instances, we were able to

obtain the coroner's report, the medical certificate of death and, often, further description of the circumstances of the death. Follow-up contact was maintained with the provincial authorities through the end of 1972. However, numerous gaps in the data occurred and coverage was not always complete. The provinces of Ontario, British Columbia, Alberta and Quebec provided the vast majority of the information. In some instances, records were searched for 1970 as well. With a few exceptions, coroners' reports are not indexed or coded in a way which facilitates retrieval. As well, the individual reports varied considerably in detail and in the completeness and sophistication of the drug-related inquiry. In some instances, reports were traced back from newspaper and other media reports.

- [h] Some reviews and suggested readings on caffeine and its effects follow:
- Amit, Z., & Corcoran, M. Caffeine. Unpublished Commission research paper, 1970.
- Brecher, E. M., & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
- Colton, T., Gosselin, R. E., & Smith, R. P. The tolerance of coffee drinkers to caffeine. *Clinical Pharmacology and Therapeutics*, 1968, 9:31-39.
- Dreisbach, R. H., & Pfeiffer, C. Caffeine-withdrawal headache. *Journal of Laboratory and Clinical Medicine*, 1954, 28: 1212-1218.
- Goldstein, A., & Kaizer, S. Psychotropic effects of caffeine in man: III. A questionnaire survey of coffee drinking and its effects in a group of housewives. *Clinical Pharmacology and Therapeutics*, 1969, 10: 478-479.
- Goldstein, A., Kaizer, S., & Warren, R. Psychotropic effects of caffeine in man: II. Alertness, psychomotor coordination, and mood. *Journal of Pharmacology and Experimental Therapeutics*, 1965, 150: 146-151.
- Goldstein, G., Kaizer, S., & Whitby, O. Psychotropic effects of caffeine in man: IV. Quantitative and qualitative differences associated with habituation to coffee. *Clinical Pharmacology and Therapeutics*, 1969, 10: 489-497.
- Hansteen, R. W., & Miller, R. D. Caffeine and its effects. Unpublished Commission research paper, 1973.
- Kahn, E. J. *The big drink*. New York: Random House, 1960.
- Ritchie, J. M. Central nervous system stimulants: II. The xanthines. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: MacMillan, 1970. Pp. 358-370.
- Truitt, E. B., Jr. The xanthines. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (4th ed.) Toronto: McGraw-Hill, 1970. Pp. 533-558.
- Weiss, B., & Laties, V. G. Enhancement of human performance by caffeine and the amphetamines. *Pharmacological Review*, 1962, 4: 1-36.
- [i] Dr. Frederick Kerr of the Mayo Clinic in Minnesota has informed the Commission that very high doses of AMPT (140 mg per kg in monkeys or 8-9 gm per day in humans) can cause severe crystallurea. However, no sign of crystallurea has been reported at doses employed in the amphetamine blockade research (e.g., 1-4 gms).
- [j] Conceptual and methodological aspects of adverse reactions to hallucinogenic drugs are discussed in considerably more detail in Chapter 2 of the *Cannabis Report*. Much of the adverse reaction discussion in A.1 *Introduction* and A.5 *Hallucinogens* in this appendix is based on the *Cannabis Report* analysis.

[k] These calculations are based on Table G(II) and Appendix-Table 2 of unpublished Poison Control Program Statistics (1971) provided to the Commission in 1973 by E. Napke (Head, Poison Control and Drug Adverse Reaction Section, Health Protection Branch, Ottawa). The benzodiazepine minor tranquilizers were considered separately from meprobamate since the bulk of the evidence in the scientific literature suggests that this latter drug is more like the other non-barbiturate sedatives in terms of lethal toxicity. It must be stressed that the bases for reporting fatal and non-fatal poisonings to the Program undoubtedly have different sampling biases, and consequently the fatal to non-fatal ratios compared here must be seen as very general estimates, at best. (See also note *f*.)

[l] See the *Cannabis Report* for a review of cannabis effects and medical uses. In March 1973, cannabis-containing Wampole Hypno-Bromic Compound® (which was last produced in 1954) was obtained on prescription from a pharmacy in Ottawa. This preparation was marketed for medical use in Canada as a sedative-hypnotic, and in addition to cannabinoids contains morphine, chloral hydrate, belladonna alkaloids and potassium bromide.

[m] The national mortality statistics, published by Statistics Canada in *Causes of death*, are based on data abstracted and coded by provincial authorities from local reports, following the International Classification of Diseases (ICDA), 8th Revision. Consequently, the Federal Government has little direct control over many basic aspects of the data. The provinces are not consistent in the detail provided or in the care taken to prepare the material. Even within provinces, coroners differ greatly in the adequacy and completeness of death reports. At the local level there is a frequent lack of trained staff or facilities for good detective work and complete autopsy and chemical investigation. Changes in the number of deaths coded to drug-related causes from year to year, and differences among the provinces, reflect the sophistication of the investigators and the attention paid to possible drug factors, as well as variations in the incidence of toxic drug reactions. Similarly, the assignment of a death to the "Suicide", "Accidental" or "Undetermined" categories often depends on the time spent and the care invested in the investigation. Generally, the more complete the inquiries the higher the relative number of cases attributed to intentional self-poisoning or suicide. Many general or ambiguous reports and drug interaction cases are classified in residual undifferentiated categories (e.g., N977.9). This is particularly true in Quebec. Sufficient use is not made of the available ICDA drug combination classifications, and the official statistics suggest a much smaller proportion of multiple drug deaths than are actually indicated in death certificates and coroners' records. With fatalities associated with chronic, debilitating drug use, the ascription of death to a drug-specific cause or to some other particular physical condition or disease is often arbitrary, and most deaths among alcoholics, for example, are apparently coded under various specific diseases rather than to alcoholism in the official statistics. (See Table A.12 of the Annex to this appendix for a summary of the official national statistics on deaths attributed to psychotropic drugs in 1971.)

References and Selected Bibliographies

A.1 INTRODUCTION

1. Addiction Research Foundation of Ontario. Preliminary brief submitted to the Commission at Ottawa, December, 1969.
2. Amit, Z., & Corcoran, M. E. Theories of drug dependence: A critical review. Unpublished Commission research paper, 1971.
3. Ban, T. *Psychopharmacology*. Baltimore: Williams & Wilkins, 1969.
4. Blum, R. H. Mind-altering drugs and dangerous behavior. 1. Dangerous drugs. In United States, President's Commission on Law Enforcement and Administration of Justice, *Task Force Report: Narcotics and Drug Abuse*. Washington, D.C.: U.S. Government Printing Office, 1967. Pp. 22-39.
5. Clark, W. G., & del Giudice, J. *Principles of psychopharmacology*. New York: Academic, 1970.
6. Cohen, S. *The drug dilemma*. Toronto: McGraw-Hill, 1969.
7. DiPalma, J. R. (Ed.) *Drill's pharmacology in medicine*. (4th ed.) New York: McGraw-Hill, 1970.
8. Eddy, N. B., Halbach, H., Isbell, H., & Seevers, M. H. Drug dependence: Its significance and characteristics. *Bulletin of the World Health Organization*, 1965, 32: 721-733.
9. Fort, J. *The pleasure seekers: The drug crisis, youth and society*. New York: Bobbs-Merrill, 1969.
10. Goode, E. Marijuana and the politics of reality. *Journal of Health and Social Behaviour*, 1969, 10:83-94.
11. Goodman, L. S., & Gilman, A. (Eds.) *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970.
12. Haas, H., Fink, H., & Klin, B. M. The placebo problem. *Psychopharmacology Service Center Bulletin*, 1963, 2: 1-65.
13. Hug, C. C. Characteristics and theories related to acute and chronic tolerance development. In S. J. Mulé & H. Brill (Eds.), *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972. Pp. 307-358.
14. Isbell, H. Clinical aspects of the various forms of nonmedical use of drugs. *Anesthesia and Analgesia*, 1971, 50: 886-904.
15. Isbell, H., Fraser, H. F., Wikler, A., Belleville, R. E. & Eisenman, A. J. An experimental study of the etiology of "rum fits" and delirium tremens. *Quarterly Journal of Studies on Alcohol*, 1955, 16:1-33.
16. Joyce, C. R. B. (Ed.) *Psychopharmacology: Dimensions and perspective*. London: Tavistock, 1968.
17. Kalant, H., & Kalant, O. J. *Drugs, society and personal choice*. Don Mills, Ont.: General Publishing, 1971.
18. Kalant, H., LeBlanc, A. E., & Gibbins, R. J. Tolerance to, and dependence on, some non-opiate psychotropic drugs. *Pharmacological Reviews*, 1971, 23: 135-191.
19. Leckman, J., Ananth, J. V., Ban, T. A., & Lehmann, H. E. Adverse reactions: Pre-disposing factors. Paper presented to the Canadian Psychiatric Association, Halifax, June, 1971.

20. Ludwig, E. G., & Collette, J. C. Some misuses of health statistics. *Journal of the American Medical Association* 1971, 216: 493-499.
21. Martin, E. W., and associates. *Remington's pharmaceutical sciences*. (14th ed.) Easton, Penn.: Mack, 1970.
22. Modell, W. Mass drug catastrophies and the roles of science and technology. *Science*, 1967, 156: 346-351.
23. Nowlis, H. H. *Drugs on the college campus*. Garden City, N.Y.: Doubleday, 1969.
24. Peterson, E. Psychopharmacology. In J. A. Vernon (Ed.), *Introduction to psychology: A self-selection textbook*. Dubuque, Iowa: Brown, 1966.
25. Popper, K. *The logic of scientific discovery*. New York: Basic, 1959.
26. Schuster, C. R., & Thompson, T. Self administration of and behavioral dependence on drugs. *Annual Review of Pharmacology*, 1969, 9: 483-502.
27. Thompson, T., & Schuster, C. R. *Behavioral pharmacology*. Englewood Cliffs, N.J.: Prentice-Hall, 1968.
28. Unwin, J. R. Non-medical use of drugs with particular reference to youth. *Canadian Medical Association Journal*, 1969, 101: 804-820. (Position paper included in Canadian Medical Association brief to the Commission, November 7, 1969)
29. Whitaker, R. *Drugs and the law*. Toronto: Methuen, 1969.
30. World Health Organization. *Research in psychopharmacology*. (WHO Technical Report Series No. 371), 1967.

A.2 OPIATE NARCOTICS

1. Adler, F. L., & Liu, C.-T. Detection of morphine by hemagglutination-inhibition. *Journal of Immunology*, 1971, 106: 1684-1685.
2. Amit, Z., & Corcoran, M. E. Involvement of hypothalamic mechanisms in morphine intake: A further investigation. In press, *Life Sciences*, 1973.
3. Amit, Z., & Corcoran, M. E. Theories of drug dependence: A critical review. Unpublished Commission research paper, 1971.
4. Anderson, F. E. (Chief, Drug Information Branch, Bureau of Narcotics and Dangerous Drugs, Washington, D.C.) Personal communication to the Commission, 1972.
5. Ausubel, D. P. *Drug addiction: Physiological, psychological, and sociological aspects*. New York: Random House, 1958.
6. Baden, M. M. Homicide, suicide, and accidental death among narcotic addicts. *Human Pathology*, 1972, 3: 91-95.
7. Baden, M. M. Methadone related deaths in New York City. *International Journal of the Addictions*, 1970, 5: 489-498.
8. Baden, M. M. Narcotic abuse: A medical examiner's view. *New York State Journal of Medicine*, 1972, 72: 834-840.
9. Baden, M. M., Valanju, N. N., Verma, S. K., & Valanju, S. N. Confirmed identification of biotransformed drugs of abuse in urine. *American Journal of Clinical Pathology*, 1972, 57: 43-51.
10. Ball, J. C., & Urbaitis, J. C. Absence of major medical complications among chronic opiate addicts. In National Academy of Sciences and National Research Council, Committee on Problems of Drug Dependence. *Report of the Thirty-Second Meeting, Feb. 16-18, 1970, Washington, D.C.* Pp. 6509-6513.
11. Ball, J. C., Chambers, C. D., & Ball, M. J. The association of marihuana smoking with opiate addiction in the United States. *Journal of Criminal Law, Criminology and Police Science*, 1968, 59: 171-182.

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12. Barr, H. L., Ottenberg, D. J., & Rosen, A. The cross-use of alcohol and drugs by addicts and alcoholics. I. Patterns of previous abuse of alcohol and drugs in a group of hospitalized drug addicts. Paper presented at the International Conference on Alcoholism and Addictions, Dublin, October 5-8, 1971.
13. Bauer, R. O., & Pearson, R. G. The effects of morphine-nalorphine mixtures on psychomotor performance. *Journal of Pharmacology and Experimental Therapeutics*, 1956, 117: 258-264.
14. Becker, C. E. Medical complications of heroin addiction. *California Medicine*, 1972, 115: 42-50.
15. Beckstead, H. D., & French, W. N. *Some analytical methods for drugs subject to abuse*. Ottawa: Department of National Health and Welfare, 1971.
16. Beecher, H. K. *Quantitative effects of drugs: Measurement of subjective responses*. New York: Oxford University Press, 1959.
17. Berkowitz, B., & Spector, S. Evidence for active immunity to morphine in mice. *Science*, 1972, 178: 1290-1292.
18. Bewley, T. H., Ben-Arie, O., & James, I. P. Morbidity and mortality from heroin dependence: Survey of heroin addicts known to Home Office. *British Medical Journal*, 1968, 1: 725-732.
19. Blachly, P. H., David, N. A., & Irwin, S. 1-alpha-acetylmethadol (LAM): Comparison of laboratory findings, electroencephalograms, and Cornell Medical Index of patients stabilized on LAM with those on methadone. *Fourth National Conference on Methadone Treatment Proceedings, San Francisco, January 8-10, 1972*. New York: National Association for the Prevention of Addiction to Narcotics, 1972. Pp. 203-206.
20. Blatman, S. Babies seem better off when mothers are on methadone. *Medical World News*, 1972, 13: 16-18.
21. Blinick, G. Menstrual function and pregnancy in narcotics addicts treated with methadone. *Nature*, 1968, 219: 180.
22. Blomberg, R. D., & Preusser, D. F. *Drug abuse and driving performance*. U.S. Department of Transportation, DOT-8S-099-1-184. Springfield, Va.: National Technical Information Service, 1972. PB No. 197-325.
23. Blum, R. H. Mind altering drugs and dangerous behavior: Narcotics. In United States, President's Commission on Law Enforcement and Administration of Justice. *Task force report: Narcotics and drug abuse*. Washington, D.C.: U.S. Government Printing Office, 1967. Pp. 40-63.
24. Blum, R. H., & Associates. *Society and drugs*. San Francisco: Jossey-Bass, 1969.
25. Braenden, O. J., Eddy, N. B., & Halbach, H. Synthetic substances with morphine-like effect: Relationship between chemical structure and analgesic action. *Bulletin of the World Health Organization*, 1955, 13: 937-998.
26. Brecher, E. M. & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
27. Brecher, E. M. & the Editors of Consumers Reports. The overdose explanation is a myth: So why do heroin addicts drop dead? *New York Times Magazine*, November 19, 1972: 108 *et passim*.
28. Brill, H. Misapprehensions about drug addiction: Some origins and repercussions. *Comprehensive Psychiatry*, 1963, 4: 150-159.
29. Bristol Laboratories. Pharmacological properties of BC-2605. Unpublished manuscript, Bristol Laboratories, Candiac, Quebec, n.d.
30. Burroughs, W. *Naked lunch*. New York: Grove, 1966.
31. Burroughs, W. *Junkie*. New York: Ace, 1953.

32. California, Department of Justice, Bureau of Criminal Statistics. *Drug arrests and dispositions in California, 1968*. California: Department of Justice, Bureau of Criminal Statistics, 1968.
33. Camps, F. E. Investigation of the cause of death in cases of drug dependency. Paper presented at the International Conference on Drug Dependence, Quebec, September 25, 1968.
34. Canada, Department of National Health and Welfare, Food and Drug Directorate (now Health Protection Branch), Statistical Services Division. Identity of police drug exhibits. Unpublished statistics, Ottawa, March, 1972.
35. Canada, National Research Council. Bristol's levo-BC-2605: Symbols of hope for heroin addicts. *Science Dimension*, 1972, 4(5): 14-16.
36. Canada, Statistics Canada. *Causes of death: Provinces by sex and Canada by sex and age (1971)*. Ottawa: Information Canada, 1972.
37. Canada, Statistics Canada. *Mental health statistics*. Vol. 1. *Institutional admissions and separations 1970*. Ottawa: Information Canada, 1972.
38. Chambers, C. D., Inciardi, J. A., & Stephens, R. C. A critical review of pentazocine abuse. *Health Services and Mental Health Administration Reports*, 1971, 86: 627-636.
39. Cheek, F. E., Newell, S., & Sarett, M. The down-head behind an up-head—The heroin addict takes LSD. *International Journal of the Addictions*, 1969, 4: 101-119.
40. Chein, I., Gerard, D. L., Lee, R. S., & Rosenfeld, E. *The road to H*. New York: Basic, 1964.
41. Cherubin, C. E. The medical sequelae of narcotic addiction. *Annals of Internal Medicine*, 1967, 67: 23-33.
42. Cherubin, C. E. A review of the medical complications of narcotic addiction. *International Journal of the Addictions*, 1968, 3: 163-175.
43. Cherubin, C., McCusker, J., Baden, J., Kavalier, F., & Amsel, Z. The epidemiology of death in narcotic addicts. *American Journal of Epidemiology*, 1972, 96: 11-22.
44. Clairmont, A. (Medical Director, Bristol Laboratories, Candiac, Quebec) Personal communication to the Commission, 1973.
45. Clarke, E. G. C. (Ed.) *Isolation and identification of drugs*. London: Pharmaceutical, 1969.
46. Cochin, J. Possible mechanisms in development of tolerance. *Federation Proceedings*, 1970, 29: 19-27.
47. Coughlan, A. J., & Zimmerman, R. S. Self-help (Daytop) and methadone maintenance: Are they both failing? *Drug Forum*, 1972, 1: 215-225.
48. Collis, M. *Foreign mud: The opium imbroglio at Canton in the 1830's and the Anglo-Chinese war that followed*. London: Faber & Faber, 1964.
49. Cook, S. J. Ideology and Canadian narcotics legislation. 1908-1923. Unpublished manuscript, University of Toronto, Toronto, 1964.
50. Cumberlidge, M. C. The abuse of barbiturates by heroin addicts. *Canadian Medical Association Journal*, 1968, 98: 1045-1049.
51. Davis, W. M., & Lin, C. H. Prenatal morphine effects on survival and behavior of rat offspring. *Research Communications in Chemical Pathology and Pharmacology*, 1972, 3: 205-214.
52. Deichmann, W. B., & Gerarde, H. W. *Toxicology of drugs and chemicals*. New York: Academic, 1969.
53. DeQuincy, T. *Confessions of an English opium eater and other writings*. Toronto: New American Library, 1966.
54. Dole, V. P. Comments on "heroin maintenance". *Journal of the American Medical Association*, 1972, 220: 366-369.

A The Drugs and Their Effects—References

55. Dole, V. P. Research on methadone maintenance treatment. *International Journal of the Addictions*, 1970, 5: 359-373.
56. Dole, V. P., & Crowther, A., Johnson, J., Monsalvatge, M., Biller, B., & Nelson, S. S. Detection of narcotic, sedative, and amphetamine drugs in urine. *New York State Journal of Medicine*, 1972, 72: 471-476.
57. Dole, V. P., Kim, W. K., & Eglitis, I. Detection of narcotic drugs, tranquilizers, amphetamines, and barbiturates in urine. *Journal of the American Medical Association*, 1966, 198: 349-352.
58. Dole, V. P., & Nyswander, M. A. medical treatment for diacetylmorphine (heroin) addiction. *Journal of the American Medical Association*, 1965, 193: 646-650.
59. Dole, V. P., & Nyswander, M. A. The use of methadone for narcotic blockade. *British Journal of Addiction*, 1968, 63: 55-57.
60. Dole, V. P., Nyswander, M., Lowinson, J., Trigg, H., Freeman, N., Lowen, G., Davidson, M., Gordon, N., & Warner, A. Methadone maintenance: A report of two years experience. Appendix 15 to U.S. National Academy of Sciences and National Research Council, Committee on Problems of Drug Dependence. *Report*. Washington, D.C., 1966. Pp. 5136-5142.
61. Duberstein, J. L., & Kaufman, D. M. A clinical study of an epidemic of heroin intoxication and heroin-induced pulmonary edema. *American Journal of Medicine*, 1971, 51: 704-714.
62. Dundee, J. W., Clarke, R. S. J., & Loan, W. B. Comparative toxicity of diamorphine, morphine and methadone. *Lancet*, 1967, 2: 221-224.
63. Duvall, H. J., Locke, B. Z., & Brill, L. Followup study of narcotic drug addicts five years after hospitalization. *Public Health Reports*, 1963, 78: 185-193.
64. Eash, Z., & Reed, P. Driving records of Oregon methadon patients. In P. H. Blachly (Ed.), *Methadone 1971 workshop proceedings*. Portland, Oregon, 1972.
65. Eerola, R. The effect of ethanol on the toxicity of hexobarbital, thiopental, morphine, atropine, and scopolamine: An experimental study on mice. *Annales Medicinæ Experimentalis et Biologiæ Fenniae*, 1961, 39: 1-70.
66. Eerola, R., Vehno, I., Vartiainen, O., & Vehno, E. V. Acute alcoholic poisoning and morphine: An experimental study of the synergism of morphine and ethyl alcohol in mice. *Annales Medicinæ Experimentalis et Biologiæ Fenniae*, 1955, 33: 253-261.
67. Evans, W. O. The effect of stimulant drugs on opiate-induced analgesia. *Archives of Biological Medicine*, 1967, 4: 144.
68. Farmilo, C. G., Lane, R., Davis, T. W., & Airth, J. M. The composition of some seized heroin samples from the illicit traffic in Canada and New York City. In National Academy of Sciences and National Research Council, Committee on Drug Addiction and Narcotics. *Minutes of the Twenty-sixth meeting, Washington, D.C., February, 1964*. Pp. 3737-3748.
69. Fernandes, M., & Coper, H. The role of vehicles in cannabis application and interaction between cannabis and central active drugs. (Abstract) *Acta Pharmaceutica Seucica*, 1971, 8: 692-693.
70. Fink, M. A rational therapy of opiate dependence: Narcotic antagonists. *Journal of Psychedelic Drugs*, 1971, 4: 157-161.
71. Foltz, E. L., & White, L. E. Experimental cingulumotomy and modification of morphine withdrawal. *Journal of Neurosurgery*, 1957, 14: 655-673.
72. Fraser, H. F., & Isbell, H. Actions and addiction liabilities of alpha-acetyl-methadols in man. *Journal of Pharmacology and Experimental Therapeutics*, 1952, 105: 485-465.

73. Fraser, H. F., Jones, B. E., Rosenberg, D. E., & Thompson, A. K. Effects of addiction to intravenous heroin on patterns of physical activity in man. *Clinical Pharmacology and Therapeutics*, 1963, 4: 188-196.
74. Friedler, G. Growth retardation in offspring of female rats treated with morphine prior to conception. *Science*, 1972, 175: 654-656.
75. Froede, R. C., & Stahl, C. J. Fatal narcotism in military personnel. *Journal of Forensic Sciences*, 1971, 16: 199-218.
76. Fulton, C. C. An analytical study of confiscated samples of narcotic drugs. *International Microform Journal of Legal Medicine*, 1965, 1. (See also reference #68.)
77. Gardner, R. Deaths in United Kingdom opioid users 1965-69. *Lancet*, 1970, 2: 650-653.
78. Gearing, F. R. Methadone maintenance: Six years later. *Contemporary Drug Problems*, 1972, 1: 191-206.
79. Glaser, D., Inciardi, J. T., & Babst, D. V. Later heroin use by marijuana-using, heroin-using and non-drug-using adolescent offenders in New York City. *International Journal of the Addictions*, 1969, 4: 145-155.
80. Glass, L., Rajegovda, B. K., Kahu, E. J., & Floyd, M. V. Effect of heroin withdrawal on respiratory rate and acid base status in the newborn. *New England Journal of Medicine*, 1972, 286: 746-748.
81. Goldberg, S. R., & Hoffmeister, F. Morphine antagonists: Modification of behavioral effects by morphine dependence. *Clinical Toxicology*, 1972, 5: 41.
82. Goldner, S. Field reports: Montreal. Unpublished Commission research project, 1971.
83. Goldstein, A. Dosage, duration, side effects. In *Proceedings of the Third National Conference on Methadone Treatment. November 14-16, 1970*. Washington, D.C.: U.S. Government Printing Office, 1970. Pp. 31-37.
84. Goldstein, A. (Stanford University Medical Center, Stanford, Calif.) Personal communication to the Commission. August, 1972.
85. Gordon, N. B., Warner, A., & Henderson, A. Psychomotor and intellectual performance under methadone maintenance. Appendix 39 to U.S. National Academy of Sciences and National Research Council, Committee on Problems of Drug Dependence, *Report*. Washington, D.C., 1967. Pp. 5136-5142.
86. Gorodetsky, C. W. (National Institute of Mental Health, Addiction Research Center, Lexington, Kentucky) Personal communication to the Commission, 1973.
87. Green, M., & Blackwell, J. C. Final monitoring project. Unpublished Commission research project, 1972.
88. Grinspoon, L. *Marihuana reconsidered*. Cambridge, Mass.: Harvard University Press, 1971.
89. Gruhzit, C. C. Pharmacological investigation and evaluation of the effects of combined barbiturate and heroin inhalation by addicts. *Bulletin on Narcotics*, 1958, 10: 8-11.
90. Haislip, G. R. General discussion. *International Journal of the Addictions*, 1970, 5: 559-561.
91. Halisky, T. (Field Operations Directorate, Department of National Health and Welfare, Ottawa.) Unpublished information provided to the Commission, 1972.
92. Hamburger, E. Barbiturate use in narcotic addicts. *Journal of the American Medical Association*, 1964, 189: 366-368.
93. Harpel, H. S., & Gautieri, R. F. Morphine-induced fetal malformations. *Journal of Pharmaceutical Sciences*, 1968, 57: 1590-1597.

94. Harthoorn, A. M. Comparative pharmacological reactions of certain wild and domestic mammals to thebaine derivatives in the M-series of compounds. *Federation Proceedings*, 1967, 26: 1251-1261.
95. Helpern, M. Epidemic of fatal estivo-autumnal malaria among drug addicts in New York City. *American Journal of Surgery*, 1934, 26: 111.
96. Helpern, M. Heroin as a killer. *New York Times Magazine*, December 10, 1972: 29, 108.
97. Helpern, M., & Rho, Y. M. Deaths from narcotism in New York City. *New York State Journal of Medicine*, 1966, 66: 2391-2408.
98. Hemmings, B., & Miller, R. D. Non-medical drug use as a factor in hospitalization: A survey of Canadian psychiatric hospital records. Unpublished Commission research project, 1971.
99. Hemmings, B., & Miller, R. D. A survey of provincial coroners regarding drug-related deaths in Canada. Unpublished Commission research project, 1971-72.
100. Henderson, G. L. The value of urinalysis in methadone treatment programs. Paper presented at the Drug Abuse Symposium sponsored by the Department of Pharmacology, School of Medicine, University of California, Squaw Valley, California, 1972.
101. Henderson, I. *An exploration of the natural history of heroin addiction*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
102. Himmelsbach, C. K. Treatment of the morphine abstinence syndrome with a synthetic cannabis-like compound. *Southern Medical Journal*, 1944, 37: 26-29.
103. Hug, C. C. Characteristics and theories related to acute and chronic tolerance development. In S. J. Mulé & H. Brill (Eds.), *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972. Pp. 307-358.
104. Irwin, S., Blachly, P. H., Marks, J., & Carter, C. C. Preliminary observations with acute and chronic methadone and 1-alpha-acetylmethadol administration in humans. In National Academy of Sciences, National Academy of Engineering, National Research Council, *Committee on Problems of Drug Dependence*. Report of the Thirty-Fourth Meeting, Ann Arbor, Mich., 1972. Pp. 944-954.
105. Isbell, H., Eisenman, A. J., Wikler, A., Daingerfield, M., & Frank, K. Experimental addiction to 10820 (4-4-diphenyl-6-dimethylamino-heptanone-3) in man. *Federation Proceedings*, 1947, 6: 264.
106. Isbell, H., Eisenman, A. J., Wikler, A., & Frank, K. The effects of single doses of 6-dimethylamino-4-4-diphenyl-3-heptanone (amidone, methadon, or '10820') on human subjects. *Journal of Pharmacology and Experimental Therapeutics*, 1948, 92: 83-89.
107. Isbell, H., & Fraser, H. F. Addiction to analgesics and barbiturates. *Pharmacological Reviews*, 1950, 2: 355-397.
108. Isbell, H., Wikler, A., Eddy, N. B., Wilson, J. L., & Moran, C. F. Tolerance and addiction liability of 6-dimethylamino-4-4-diphenyl-heptanone-3 (methadon). *Journal of the American Medical Association*, 1947, 135: 888-894.
109. Isbell, H., Wikler, A., Eisenman, A. J., Daingerfield, M., & Frank, K. Liability of addiction to 6-dimethylamino-4-4-diphenyl-3-heptanone (methadon, "amidone" or "10820") in man. *Archives of Internal Medicine*, 1948, 82: 362-392.
110. Jacobs, S., & Lomax, P. Heroin and the electrophysiology of the cingulum and cingulate cortex. (Abstract) *Federation Proceedings*, 1972, 31: 504Abs.
111. Jaffe, J. H. A bio-behavioral and public health approach to a heroin epidemic among military personnel. Paper presented to the American Psychiatric Association, Dallas, Texas, May 2, 1972.

112. Jaffe, J. H. Drug addiction and drug abuse. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) New York: Macmillan, 1970. Pp. 276-313.
113. Jaffe, J. H. Narcotic analgesics. In L. S. Goodman & A. Gilman (Eds.) *The pharmacological basis of therapeutics*. (4th ed.) New York: Macmillan, 1970. Pp. 247-275.
114. Jaffe, J. H. Treatment of drug abusers. In W. G. Clark & J. del Giudice (Eds.), *Principles of psychopharmacology*. New York: Academic, 1970. Pp. 547-569.
115. Jaffe, J. H., & Brill, L. Cyclaxocine, a long-acting narcotic antagonist: Its voluntary acceptance as a treatment modality by narcotics abusers. *International Journal of the Addictions*, 1966, 1: 99-123.
116. Jaffe, J. H., & Senay, E. C. Methadone and 1-methadyl acetate: Use in management of narcotics addicts. *Journal of the American Medical Association*, 1971, 216: 1303-1305.
117. Jaffe, J. H., Senay, E. C., Schuster, C. R., Renault, P. F., Smith, B. B., & diMenaz, S. Methadyl acetates versus methadyl: A double-blind study of dl-methadyl acetate and methadone in heroin users. *Journal of the American Medical Association*, 1972, 222: 437-442.
118. Jaffe, J. H., Schuster, C. R., Smith, B. B., & Blachly P. H. Comparison of acetyl-methadol and methadone in the treatment of long-term heroin users. *Journal of the American Medical Association*, 1970, 211: 1834-1836.
119. Jaffe, J. H., Zaks, M. S., & Washington, E. N. Experience with the use of methadone in a multi-modality program for the treatment of narcotics users. *International Journal of the Addictions*, 1969, 4: 481-490.
120. James, I. P. Suicide and mortality amongst heroin addicts in Britain. *British Journal of Addiction*, 1967, 62: 391-398.
121. Jamison, K. Psychological and sociological perspectives on narcotics addiction. "Appendix B" to W. H. McGlothlin, V. C. Tabbush, C. D. Chambers, & K. Jamison, Alternative approaches to opiate addiction control: Costs, benefits and potential. Unpublished manuscript, Department of Psychology, University of California, Los Angeles, 1972.
122. Jasinski, D. R., Nutt, J. G., & Carr, C. Evaluation in man of the effects of a mixture of morphine and d-amphetamine (MA). (Abstract) *Federation Proceedings*, 1972, 31: 530Abs.
123. Johnston, W. E., & Williams, H. R. *Drug use patterns and related factors of heroin addicts seeking treatment for their addiction*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1971.
124. Josie, G. H. *A report on drug addiction in Canada*. Ottawa: King's Printer and Controller of Stationery, 1948.
125. Kaistha, K. K. Drug abuse screening programs: Detection procedures, development costs, street-sample analysis, and field tests. *Journal of Pharmaceutical Sciences*, 1972, 61: 655-679.
126. Kaistha, K. K., & Jaffe, J. H. Cost of a toxicology laboratory facility: Development expenses and cost per urine test using thin layer chromatographic techniques in a drug abuse urine screening program. *International Journal of the Addictions*, 1972, 7: 585-592.
127. Kaistha, K. K., & Jaffe, J. H. Reliability of identification techniques for drugs of abuse in a urine screening program and drug excretion data. *Journal of Pharmaceutical Sciences*, 1972, 61: 305-307.
128. Kerr, F. W. L., & Pozuelo, J. Suppression of physical dependence and induction of hypersensitivity to morphine by stereotaxic hypothalamic lesions in addicted rats: A new theory of addiction. *Mayo Clinic Proceedings*, 1971, 46: 653-665.

A The Drugs and Their Effects — References

129. Kolb, L., & Ossenfort, W. F. Treatment of drug addicts at the Lexington Hospital. *Southern Medical Journal*, 1938, 31: 914-922.
130. Lasagna, L., Felsing, J. M., & Beecher, H. K. Drug-induced mood changes in man. *Journal of the American Medical Association*, 1955, 157: 1006-1020.
131. Lawler, H. C., Alexander, G. J., Toscano, S., Dean, L., Machiz, S., & Whittingham, W. Narcotics, including methadone, in tissue: Survey of quantitative assays. (Abstract) *Federation Proceedings*, 1972, 31: 878.
132. Lehmann, H. E. Phenomenology and pathology of addiction. *Comprehensive Psychiatry*, 1963, 4: 168-180.
133. Lehmann, H. E. Ananth, J. V., Geagea, K. C., & Ban, T. A. Treatment of depression with dexedrine and demerol. *Current Therapeutic Research*, 1971, 13: 42-49.
134. Lennard, H. L., Epstein, L. J., & Rosenthal, M. S. The methadone illusion. *Science*, 1972, 176: 881-884.
135. Leute, R. (Syva Company, Palo Alto, California) Personal communication to the Commission, 1973.
136. Leute, R., Ullman, E. F., & Goldstein, A. Spin immunoassay of opiate narcotics in urine and saliva. *Journal of the American Medical Association*, 1972, 221: 1231-1234.
137. Lewis, J. W. Bentley, K. W., & Cowan, A. Narcotic analgesics and antagonists. *Annual Review of Pharmacology*, 1971, 11: 241-270.
138. Light, A. B. Opium addiction: XI. General summary. *Archives of Internal Medicine*, 1929, 44: 870-876.
139. Light, A. B., & Torrance, E. G. Opium addiction: VIII. The effects of intramuscular and intravenous administration of large doses of morphine to human addicts. *Archives of Internal Medicine*, 1929, 44: 376-394.
140. Light, A. B., & Torrance, E. G. Opium addiction: V. Miscellaneous observations on human addicts during the administration of morphine. *Archives of Internal Medicine*, 1929, 43: 878-889.
141. Light, A. B., & Torrance, E. G. Opium addiction: II. Physical characteristics and physical fitness of addicts during administration of morphine. *Archives of Internal Medicine*, 1929, 43: 326-334.
142. Lilly Research Laboratories. Methadone: A bibliography, 1929-1971. Part 2. *International Journal of the Addictions*, 1971, 6: 677-692.
143. Louria, D. B., Hensle, T., & Rose, J. The major medical complications of heroin addiction. *Annals of Internal Medicine*, 1967, 67: 1-22.
144. Macdonald, R. St. J. Narcotic drug addiction in Canada. In R. St. J. Macdonald (Ed.), *Current law and social problems*. Toronto: University of Toronto Press, 1960. Pp. 162-204.
145. Macht, D. I. The history of opium and some of its preparations and alkaloids. *Journal of the American Medical Association*, 1915, 64: 477-481.
146. Martin, W. R. (Addiction Research Center, National Institute of Mental Health, Lexington, Ky.) Personal communication to the Commission, 1973.
147. Martin, W. R., & Fraser, H. F. A comparative study of physiological and subjective effects of heroin and morphine administered intravenously in postaddicts. *Journal of Pharmacology and Experimental Therapeutics*, 1961, 133: 388-399.
148. Martin, W. R., & Jasinski, D. R. Physiological parameters of morphine dependence in man: Tolerance, early abstinence, protracted abstinence. *Journal of Psychiatric Research*, 1969, 7: 9-17.
149. Martin, W. R., Jasinski, D. R., & Mansky, P. A. The effects of EN-1639A (N-cyclopropylmethyl-7, 8-dihydro-14-hydroxy-normorphinone HCl) in man, an antagonist for the treatment of heroin dependence. Unpublished manuscript, National Institute of Mental Health, Addiction Research Center, Lexington, Kentucky, 1972.

150. Martin, W. R., Jasinski, D. R., Sapira, J. D., Flanary, H. G., Kelly, O. A., Thompson, A. K., & Logan, C. R. The respiratory effects of morphine during a cycle of dependence. *Journal of Pharmacology and Experimental Therapeutics*, 1968, 162: 182-189.
151. Martin, W. R., & Sandquist, V. L. Long-acting narcotic antagonists. In National Academy of Sciences, National Academy of Engineering, National Research Council, *Committee on Problems of Drug Dependence*. Report of the Thirty-Fourth Meeting, Ann Arbor, Mich., 1972. Pp. 21-31.
152. Mason, P. Mortality among young narcotic addicts. *Mount Sinai Hospital Journal*, 1967, 34: 4-10.
153. Maugh, T. H. Narcotic antagonists: The search accelerates. *Science*, 1972, 177: 249-250.
154. Mayor's Committee on Marihuana. The marihuana problem in the City of New York. Lancaster, Penn.: Jacques Cattell Press, 1944. ('The La Guardia Report')
155. McGlothlin, W. H., Tabbush, V. C., Chambers, C. D., & Jamison, K. Alternative approaches to opiate addiction control: Costs, benefits and potential. Unpublished manuscript, Department of Psychology, University of California, Los Angeles, 1972.
156. McGlothlin, W. H., Tabbush, V. C., Chambers, C. D., & Jamison, K. A model for estimating the social costs of narcotic addiction. "Appendix A" to their Alternative approaches to opiate addiction control: Costs, benefits and potential. Unpublished manuscript, Department of Psychology, University of California, Los Angeles, 1972.
157. Mickel, E. J., Jr. The artificial paradises in French literature. Part 1. The influence of opium and hashish on the literature of French romanticism and *Les fleurs du mal*. Chapel Hill: University of North Carolina Press, 1969.
158. Miller, R. D., & Hemmings, B. Drug induced poisoning and death in Canada. Unpublished Commission research project, 1973.
159. Miller, R. D., Oestreicher, P., Marshman, J., Beckstead, H., Paterson, R., Larsson, G., Hemmings, B., Green, M., & Farmilo, C. Chemical analysis of street drugs in Canada. Unpublished Commission research project, 1972.
160. Mitchell, C. L., Kayan, S., Adams, B. J., Yeh, S. Y., & Woods, L. A. Experience as a factor in the development of tolerance to morphine. (Abstract) *Pharmacologist*, 1968, 10: 188.
161. Mitcheson, M., Davidson, J., Hawks, D., Hitchens, L., & Malone, S. Sedative abuse by heroin addicts. *Lancet*, 1970, 1: 606-607.
162. Mulé, S. J. Methods for the analysis of narcotic analgesics and amphetamines. *Journal of Chromatographic Science*, 1972, 10: 275-282.
163. Mulvihill, D. J., & Tumin, M. M. *Crimes of violence: A staff report submitted to the National Commission on the Causes and Prevention of Violence*. Vol. 12. Washington, D.C.: U.S. Government Printing Office, 1969.
164. Murphree, H. B. Narcotic analgesics. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) Toronto: McGraw-Hill, 1965. Pp. 246-273.
165. Murphy, B. C. *A quantitative test of the effectiveness of an experimental treatment programme for delinquent opiate addicts*. Department of the Solicitor General of Canada, Research Centre Report 4. Ottawa: Information Canada, 1972.
166. Murphy, E. F. *The black candle*. Toronto: Thomas Allen, 1922.
167. Myers, H. B. Cross tolerance: Altered susceptibility to codein, heroin, cannabis-indica and chloral-hydrate in dogs having an acquired tolerance for morphine. *Journal of Pharmacology and Experimental Therapeutics*, 1916, 8: 417-437.
168. Naalsund, O. Influence of alcohol as contraindication against morphine. (Abstract) *Journal of the American Medical Association*, 1955, 159: 727.

169. Napke, E. (Head, Poison Control and Drug Adverse Reaction Section, Department of National Health and Welfare, Ottawa) Preliminary Poison Control Program Statistics (1971) communicated to the Commission, 1973.
170. Narcotic Addiction Foundation of British Columbia. Brief submitted to the Commission at Vancouver, October 30, 1969.
171. Narcotic Addiction Foundation of British Columbia. Unpublished information provided to the Commission, 1972.
172. New York State Narcotic Addiction Control Commission. Former addicts employed as truck drivers. *Attack on Narcotic Addiction and Drug Abuse*, 1972, 5: 1 & 10.
173. New York State Narcotic Addiction Control Commission and New York State Department of Motor Vehicles. *Driving records of heroin addicts*. Research report No. 1969-11. New York, 1969.
174. Nyswander, M. *The drug addict as a patient*. New York: Grune & Stratton, 1956.
175. Nyswander, M. The withdrawal treatment of adolescent drug addicts. In E. Harms (Ed.), *Drug addiction in youth*. Oxford: Pergamon, 1965. Pp. 126-131.
176. O'Donnell, J. A. *Narcotic addicts in Kentucky*. (Public Health Service Publication No. 1881) Washington, D.C.: U.S. Government Printing Office, 1969.
177. Oestreicher, P., Miller, R. D., Beckstead, H., Larsson, G., & Farmilo, C. Chemical analysis of police seizures of heroin. Unpublished Commission research project, 1971.
178. Osler, W. Oedema of the left lung in morphia poisoning. *Montreal General Hospital Reports*, 1880, 1: 291.
179. Page, H. (Chief, Vital Statistics Section, Statistics Canada, Ottawa) Information on causes of death in Canada. Unpublished statistics provided to the Commission, 1973.
180. Paton, W. D. M. Drug dependence—A sociopharmacological assessment. *Advancement of Science*, 1968, 25: 200-212.
181. Paulus, I. Psychedelic drug use on the Canadian Pacific coast: Notes on the new drug scene. *International Journal of the Addictions*, 1969 4: 77-88.
182. Pert, C. B., & Snyder, S. H. Opiate receptor: Demonstration in nervous tissue. *Science*, 1973, 179: 1011-1014.
183. Pfeffer, A. Z., & Ruble, D. C. Chronic psychoses and addiction to morphine. *Archives of Neurology and Psychiatry*, 1946, 56: 665-672.
184. Pickett, R. D. Acute toxicity of heroin, alone and in combination with cocaine or quinine. *British Pharmacological Society*, 1970, 40: 145-146.
185. Polonsky, D., Davis, G. F., & Roberts, C. F. *A follow-up study of the juvenile drug offender*. Sacramento, Calif.: Institute for the Study of Crime and Delinquency, 1967.
186. Popham, R. E. (Ed.) *Alcohol and alcoholism*. Toronto: University of Toronto: University of Toronto Press, 1970.
187. Pozuelo, J., & Kerr, F. W. L. Suppression of craving and other signs of dependence in morphine-addicted monkeys by administration of alpha-methyl-para-tyrosine. *Mayo Clinic Proceedings*, 1972, 47: 621-628.
188. Pui-Nin Mo, B., & Way, E. L. An assessment of inhalation as a mode of administration of heroin by addicts. *Journal of Pharmacology and Experimental Therapeutics*, 1966, 154: 142-151.
189. Regush, N. M. *The drug addiction business*. New York: Dial, 1971.
190. Reynolds, A. K., & Randall, L. O. *Morphine and allied drugs*. Toronto: University of Toronto Press, 1957.
191. Richter, R. W. Muscle damage in heroin addicts. (Abstract) *New England Journal of Medicine*, 1971, 284: 920.

192. Riley, R. C. (Statistics Canada, Health and Welfare Division, Mental Health Section, Ottawa) Unpublished information communicated to the Commission, 1972.
193. Ritchie, J. M. Central nervous system stimulants: The xanthines. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 358-370.
194. Robins, L. N., Darvish, H. S., & Murphy, G. E. The long-term outcome for adolescent drug users: A follow-up study of 76 users and 146 non-users. In J. Zubin & A. M. Freedman (Eds.), *The psychopathology of adolescence*. New York: Grune & Stratton, 1970, Pp. 159-180.
195. Robinson, A. E. Forensic toxicology of psycho-active drugs. *Chemistry in Britain*, 1972, 8: 118-123.
196. Royal Canadian Mounted Police. Brief submitted to the Commission, Ottawa, March, 1970 (With Appendix 2—Effects of drug abuse: Relationship between drug use and criminality.)
197. Rubenstein, K. E., Schneider, R. S., & Ullman, E. F. "Homogeneous" enzyme immunoassay: A new immunochemical technique. *Biochemical and Biophysical Research Communications*, 1972, 47: 846-851.
198. Sapiro, J. D. The narcotic addict as a medical patient. *American Journal of Medicine*, 1968, 45: 555-588.
199. Schofield, M. *The strange case of pot*. Harmondsworth, England: Penguin, 1971.
200. Seevers, M. H. Morphine and ethanol physical dependence: A critique of a hypothesis. *Science*, 1970, 170: 1113-1114.
201. Seevers, M. H., & Pfeiffer, C. C. A study of the analgesia, subjective depression, and euphoria produced by morphine, heroin, dilaudid and codeine in the normal human subject. *Journal of Pharmacology and Experimental Therapy*, 1936, 56: 166-187.
202. Seidner, A. Radio immunoassay. *Cadence* (American Society of Medical Technologists), 1972: 7-15.
203. Sells, S. B., Chatham, L. R., & Retka, R. L. A study of differential death rates and causes of death among 9276 opiate addicts during 1970-1971. In National Academy of Sciences, National Academy of Engineering, National Research Council, *Committee on Problems of Drug Dependence*. Report of the Thirty-Fourth Meeting, Ann Arbor, Mich., 1972. Pp. 659-709.
204. Siegel, H. Human pulmonary pathology associated with narcotic and other addictive drugs. *Human Pathology*, 1972, 3: 55-56.
205. Siegel, H., & Bloustein, P. Continuing studies in the diagnosis and pathology of death from intravenous narcotism. *Journal of Forensic Sciences*, 1970, 15: 179-184.
206. Smith, D. E., & Gay, G. R. *"It's so good, don't even try it once"*. Englewood Cliffs, N. J.: Prentice-Hall, 1972.
207. Smith, R. Status politics and the image of the addict. *Issues in Criminology*, 1966, 2: 157-175.
208. Smith, S. M., & Burnside, I. Poppy capsule dependence. *British Medical Journal*, 1972, 1: 480.
209. Spector, S. (Roche Institute of Molecular Biology, Nutley, N.J.) Personal communication to the Commission, 1973.
210. Spector, S. Quantitative determination of morphine in serum by radioimmunoassay. *Journal of Pharmacology and Experimental Therapeutics*, 1971, 178: 253-258.
211. Spector, S., & Parker, C. W. Morphine: Radio immunoassay. *Science*, 1970, 168: 1347-1348.

A The Drugs and Their Effects — References

212. Spector, S., & Vesell, E. S. Disposition of morphine in man. *Science*, 1971, 174: 421-422.
213. Stevenson, G. H., Lingley, L. R. A., Trasov, G. E., & Stansfield, H. Drug addiction in British Columbia. Unpublished manuscript, University of British Columbia, Vancouver, B.C., 1956.
214. Sullivan, P., & Lamm, S. Respiratory distress syndrome and heroin addiction. *Lancet*, 1972, 1: 155.
215. Sunshine, I. (Ed.) *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
216. Taylor, N. *Narcotics: Nature's dangerous gifts*. New York: Dell, 1966.
217. Termansen, P. E. Suicide and attempted suicide in Vancouver—A study of psychosocial variables associated with suicide and attempted suicide. Paper presented at the Joint Meeting of the Canadian Psychiatric Association, Quebec Psychiatric Association, Royal College of Psychiatrists, Montreal, June 7-10, 1972.
218. Terry, C. E., & Pellens, M. *The opium problem*. New York: Committee on Drug Addictions & Bureau of Social Hygiene, 1928.
219. Trafton, C. L., & Marques, P. R. Effects of septal area and cingulate cortex lesions on opiate addiction behavior in rats. *Journal of Comparative and Physiological Psychology*, 1971, 75: 277-285.
220. Treyman, D. Étude sur les décès reliés à des médicaments, survenus en 1970, dans la province de Québec. Unpublished manuscript, Institut de Médecine Légale et de Police Scientifique, Montreal, 1971.
221. United States, Bureau of Narcotics and Dangerous Drugs. Thebaine derivatives: Physical dependence capacity in agonist members of the Bentley series. Unpublished manuscript, Washington, D.C., 1972.
222. United States, President's Commission on Law Enforcement and Administration of Justice. *Task force report: Narcotics, marijuana and dangerous drugs. Findings and recommendations*. Washington, D.C.: Government Printing Office, 1969.
223. United States, White House Conference on Narcotics and Drug Abuse. Abuse characteristics of psychotoxic drugs: Opiates, morphine and morphinelike analgesics. In *Proceedings of the White House Conference on Narcotics and Drug Abuse*, 1962. Pp. 279-290.
224. Vaillant, G. E. The natural history of narcotic drug addictions. *Seminars in Psychiatry*, 1970, 2: 486-498.
225. Van Vunakis, H., Wasserman, E., & Levine, L. Specificities of antibodies to morphine. *Journal of Pharmacology and Experimental Therapeutics*, 1972, 180: 514-521.
226. Wagner, H. J. Fatal poisoning after sublethal doses of alcohol and polamidone. *Archiv für Toxikologie*, 1958, 17: 159-164.
227. Wallach, R. C., Jerez, E., & Blinick, G. Pregnancy and menstrual function in narcotics addicts treated with methadone. *American Journal of Obstetrics and Gynecology*, 1969, 105: 1226-1229.
228. Way, E. L., Young, J. M., & Kemp, J. W. Metabolism of heroin and its pharmacologic implications. *Bulletin on Narcotics*, 1965, 17(1): 25-33.
229. Whitaker, R. *Drugs and the law*. Toronto: Methuen, 1969.
230. Wikler, A. Conditioning factors in opiate addiction and relapse. In D. M. Wilner & G. G. Kassebaum, *Narcotics*. New York: McGraw-Hill, 1965, Pp. 85-100.
231. Wikler, A. *The relation of psychiatry to pharmacology*. Baltimore: Williams & Wilkins, 1957.
232. Wikler, A., Norrell, H., & Miller, D. Limbic system and opioid addiction in the rat. *Experimental Neurology*, 1972, 34: 543-557.

233. Williams, H. R. Treatment of the narcotic addict with some observations on other drug dependencies. *British Columbia Medical Journal*, 1969, 11: 11-13.
234. Winick, C. *The narcotic addiction problem*. New York: American Social Health Association, 1968.
235. Wolpe, J. Conditioned inhibition of craving in drug addiction: A pilot experiment. *Behaviour Research and Therapy*, 1965, 2: 285-288.
236. World Health Organization. *Opiates and their alternates for pain and cough relief*. (WHO Technical Report Series No. 495), 1972.
237. Zaks, A., Fink, M., & Friedman, A. M. Levomethadyl in maintenance treatment of opiate dependence. *Journal of the American Medical Association*, 1972, 220: 811-813.
238. Zaks, A., Fink, M., & Freedman, A. M. 1-alpha-acetylmethadol in maintenance treatment of opiate dependence. *Fourth National Conference on Methadone Treatment Proceedings*, San Francisco, January 8-10, 1972. New York: National Association for the Prevention of Addiction to Narcotics, 1972. Pp. 207-210.
239. Zaks, A., Jones, T., Fink, M., & Freedman, A. M. Naloxone treatment of opiate dependence. *Journal of the American Medical Association*, 1971, 215: 2108-2110.
240. Zelson, C. Heroin withdrawal syndrome. (Letter to the editor) *Journal of Pediatrics*, 1970, 76: 483-484.
241. Zinberg, N. E. Rehabilitation of heroin users in Vietnam. *Contemporary Drug Problems*, 1972, 1: 263-294.

A.3 AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

1. Addiction Research Foundation. *Amphetamines. A title bibliography*. Toronto: Addiction Research Foundation, 1972.
2. Alles, C. A. The comparative physiological actions of dl-B-phenylisopropylamines. *Journal of Pharmacology and Experimental Therapeutics*, 1933, 47: 339-354.
3. Anderson, J. E. (Professor and Chairman, Department of Anatomy, McMaster University, Hamilton) Personal communication to the Commission, 1971.
4. Änggård, E., Gunne, L.-M., & Niklasson, F. Gas chromatographic determination of amphetamine in blood, tissue, and urine. *Scandinavian Journal of Clinical and Laboratory Investigation*, 1970, 26: 137-143.
5. Angrist, B. The clinical symptomatology of amphetamine psychosis and its relationship to amphetamine levels in urine. *International Pharmacopsychiatry*, 1969, 2: 125-139.
6. Angrist, B., & Gershon, S. A pilot study of pathogenic mechanisms in amphetamine psychosis utilizing differential effects of D and L amphetamine. *Pharmakopsychiatrie, Neuro-Psychopharmakologie*, 1971, 4: 64-75.
7. Arbuzov, S. Ia. [Antagonism between phenamine, corazol, and their mixture to methyl and ethyl alcohols and to ethylene glycol (antifreeze).] *Sechenov Physiological Journal of the USSR*, 1952, 38: 337-343.
8. Baden, M. M. Methadone related deaths in New York City. *International Journal of the Addictions*, 1970, 5: 489-498.
9. Baden, M. M., Valanju, N. N., Verma, S. K., & Valanju, S. N. Confirmed identification of biotransformed drugs of abuse in urine. *American Journal of Clinical Pathology*, 1972, 57: 43-51.
10. Beamish, P., & Kiloh, L. G. Psychoses due to amphetamine consumption. *Journal of Mental Science*, 1960, 106: 337-343.

11. Beckstead, H. D., & French, W. N. *Some analytical methods for drugs subject to abuse*. Ottawa: Department of National Health and Welfare, 1971.
12. Bejerot, N. *Addiction and society*. Springfield, Ill.: C. C. Thomas, 1970.
13. Bell, D. S. Addiction to stimulants. *Medical Journal of Australia*, 1967, 1: 41-45.
14. Benakis, A., & Thomasset, M. Metabolism of amphetamines and their interaction with other drugs. In F. Sjöqvist & M. Tottie (Eds.), *Abuse of central stimulants*. New York: Raven, 1969. Pp. 409-435.
15. Berger, H. J. Antagonism of CNS stimulant properties of amphetamines by a structural analog—fenfluramine. (Abstract) *Federation Proceedings*, 1972, 31: 530.
16. Bernstein, M. E., Richards, A. B., Hughes, F. W., & Forney, R. B. Optokinetic nystagmus under the influence of d-amphetamine and alcohol. *Proceedings of the IVth International Conference on Alcohol and Traffic Safety*. 1966. Pp. 208-210.
17. Bloomquist, E. R. The use and abuse of stimulants. In W. G. Clark & J. del Giudice (Eds.), *Principles of psychopharmacology*. New York: Academic, 1970. Pp. 477-488.
18. Blum, R. H., & Associates. *Society and drugs*. San Francisco: Jossey-Bass, 1969.
19. Brecher, E. M., & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
20. Brill, H., & Hirose, T. The rise and fall of a methamphetamine epidemic. Japan 1945-55. *Seminars in Psychiatry*, 1969, 1: 179-194.
21. Burroughs, W. III. *Speed*. New York: Olympia, 1970.
22. Canada, Department of National Health and Welfare, Food and Drug Directorate (now Health Protection Branch), Biostatistics Division. Poison control program statistics. Unpublished manuscripts, Ottawa, 1969, 1970.
23. Canada, Department of National Health and Welfare. New amphetamine regulations: Minister's statement. Press release No. 1972-206, Ottawa, December 28, 1972.
24. Canada, Dominion Bureau of Statistics, Health and Welfare Division. *Manual for the classification of psychiatric diagnoses*. Ottawa: Queen's Printer, 1969.
25. Canada, Statistics Canada. *Causes of death: Provinces by sex and Canada by sex and age (1971)*. Ottawa: Information Canada, 1972.
26. Canada, Statistics Canada. *Mental Health Statistics*, Vol. 1. *Institutional admissions and separations (1970)*. Ottawa: Information Canada, 1972.
27. Carey, T., & Mandel, J. A. A San Francisco bay area speed scene. *Journal of Health and Social Behavior*, 1968, 9: 164-174.
28. Citron, B. P., Halpern, M., McCarron, M. Lundberg, G. D. McCormick, R., Pincus, I. J., Tatter, D., & Haverback, B. J. Necrotizing angitis associated with drug abuse. *New England Journal of Medicine*, 1970, 283: 1003-1011.
29. Clarke, E. G. C. (Ed.) *Isolation and identification of drugs*. London: Pharmaceutical, 1969.
30. Clement, W. R., Solursh, L. P., & Van Ast, W. Abuse of amphetamine and amphetamine-like drugs. *Psychological Reports*, 1970, 26: 343-354.
31. Cole, S. O. Experimental effects of amphetamines: A review. *Psychology Bulletin*, 1967, 68: 81-90.
32. Connell, P. H. *Amphetamine psychosis*. London: Chapman and Hall, 1958.
33. Connell, P. H. Clinical manifestations and treatment of amphetamine type of dependence. *Journal of the American Medical Association*, 1966, 196: 718-723.
34. Costa, E., & Garratini, S. (Eds.) *International symposium on amphetamines and related compounds*. New York: Raven, 1970.

35. Cox, C., & Smart, R. G. The nature and extent of speed use in North America. *Canadian Medical Association Journal*, 1970, 102: 724-729.
36. Cox, C., & Smart, R. G. Social and psychological aspects of speed use. A study of types of speed users in Toronto. *International Journal of the Addictions*, 1972, 7: 201-217.
37. Davis, F., & Munoz, L. Heads and freaks: Patterns and meanings of drug use amongst hippies. *Journal of Health and Social Behavior*, 1968, 9: 156-164.
38. Dole, V. P., Crowther, A., Johnson, J., Monsalvatge, M., Biller, B., & Nelson, S. S. Detection of narcotic, sedative, and amphetamine drugs in urine. *New York State Journal of Medicine*, 1972, 72: 471-476.
39. Domino, E. F., Albers, J. W., Potvin, A. R., Repa, B. S., & Tourtelotte, W. W. Effects of d-amphetamine on quantitative measures of motor performance. *Clinical Pharmacology and Therapeutics*, 1972, 13: 251-257.
40. Douglas, V. Hyperkinetic kids. (Letter to the editor) *New York Review of Books*, December 30, 1970: 54.
41. Eddy, N. B., Halbach, H., Isbell, H., & SeEVERS, M. H. Drug dependence: Its significance and characteristics. *Bulletin of the World Health Organization*, 1965, 32: 721-733.
42. Edeleano, L. Ueber einige Derivate der Phenylmethacrylsäure, und der Phenylisobuttersäure. *Berichte Deutsche Chemische Gesellschaft*, 1887, 20: 616-622.
43. Ellinwood, E. H., Jr. "Accidental conditioning" with chronic methamphetamine intoxication: Implications for a theory of drug habituation. *Psychopharmacologia*, 1971, 21: 131-138.
44. Ellinwood, E. H., Jr. Amphetamine psychosis. I. Description of the individuals and process. *Journal of Nervous and Mental Diseases*, 1967, 144: 273-283.
45. Ellinwood, E. H., Jr. Amphetamine psychosis: Individual settings, and sequences. *Current Concepts of Amphetamine Abuse*, in press, 1972.
46. Espelin, D. E., & Done, A. K. Amphetamine poisoning: Effectiveness of chlorpromazine. *New England Journal of Medicine*, 1968, 278: 1361-1365.
47. Evans, H. L. Behavioral effects of methamphetamine and α -methyltyrosine in the rat. *Journal of Pharmacology and Experimental Therapeutics*, 1971, 176: 244-254.
48. Evans, W. O. The effect of stimulant drugs on opiate-induced analgesia. *Archives of Biological Medicine*, 1967, 4: 144.
49. Fernandes, M., & Coper, H. The role of vehicles in cannabis application and interaction between cannabis and central active drugs. (Abstract) *Acta Pharmaceutica Suecica*, 1971, 8: 692-693.
50. Gibbins, R. J. (Associate Research Director, Addiction Research Foundation, Toronto) Personal communications to the Commission, 1970.
51. Goldberg, L. Drug abuse in Sweden. *Bulletin on Narcotics*, 1968, 20: No. 1, 1-31; No. 2, 9-36.
52. Goodman, S. J., & Becker, D. P. Intracranial hemorrhage associated with amphetamine abuse. (Abstract) *Journal of the American Medical Association*, 1970, 212: 480.
53. Great Britain, Home Office, Department of Health and Social Security. *Amphetamines, barbiturates, LSD, and cannabis: Their use and misuse*. Reports on Public Health and Medical Subjects, No. 124. London: Her Majesty's Stationery Office, 1970.
54. Great Britain, Home Office, Department of Health and Social Security, Advisory Committee on Drug Dependence. *The amphetamines and lysergic acid diethylamide (LSD)*. London: Her Majesty's Stationery Office, 1970.
55. Green, M. Committed users study. Unpublished Commission research project, 1971.

56. Griffith, J. A study of illicit amphetamine drug traffic in Oklahoma City. *American Journal of Psychiatry*, 1966, 123: 560-569.
57. Griffith, J. D., Cavanaugh, J., Held, J., & Oates, J. A. Dextroamphetamine: Evaluation of psychomimetic properties in man. *Archives of General Psychiatry*, 1972, 26: 97-100.
58. Griffith, J. D., Cavanaugh, J., & Oates, J. A. Psychosis induced by the administration of d-amphetamine to human volunteers. In D. H. Efron (Ed.), *Psychotomimetic drugs*. New York: Raven, 1970.
59. Griffith, J. D., Fann, W. E., & Oates, J. A. The amphetamine psychosis: Comparison of clinical and experimental manifestations. Unpublished manuscript, Vanderbilt University School of Medicine, Nashville, Tennessee, n.d.
60. Gunne, L.-M. (Psychiatric Research Center, Ulleraker Hospital, University of Uppsala, Sweden) Information communicated to the Commission, 1973.
61. Gunne, L.-M. Änggård, E. Pharmacokinetic studies with amphetamines—Relationship to neuropsychiatric disorders. Unpublished manuscript, Psychiatric Research Center, Ulleraker Hospital, University of Uppsala, Uppsala, Sweden, 1972.
62. Gunne, L.-M., Änggård, E., & Johnsson, L. E. Clinical trials with amphetamine-blocking drugs. *Psychiatria, Neurologia, Neurochirurgia*, 1972, 75: 225-226.
63. Halisky, T. (Field Operations Directorate, Health Protection Branch, Department of National Health and Welfare, Ottawa) Unpublished information provided to the Commission, 1972.
64. Hamilton Academy of Medicine. Physician survey on drug problems. Cited in the brief submitted to the Commission by the Hamilton Academy of Medicine at Hamilton, May 15, 1970.
65. Hawks, D., Mitcheson, M., Ogborne, A., & Edwards, G. Abuse of methylamphetamine, *British Medical Journal*, 1969, 2: 715-721.
66. Hekiman, L. J., & Gershon, S. Characteristics of drug abusers admitted to a psychiatric hospital. *Journal of the American Medical Association*, 1968, 205: 125-130.
67. Hemmings, B., & Miller, R. D. Non-medical drug use as a factor in hospitalization: A survey of Canadian psychiatric hospital records. Unpublished Commission research project, 1971.
68. Hemmings, B., & Miller, R. D. A survey of provincial coroners regarding drug-related deaths in Canada. Unpublished Commission research project, 1972.
69. Herman, M., & Nagler, S. H. Psychoses due to amphetamine. *Journal of Nervous and Mental Diseases*, 1954, 120: 268-272.
70. Holt, J. Statement. In United States, Ninety-first Congress, House of Representatives, Committee on Government Operations. *Federal involvement in the use of behavior modification drugs on grammar school children of the right to privacy inquiry*. Washington, D.C.: U.S. Government Printing Office, 1970. P. 32.
71. Hug, C. C. Characteristics and theories related to acute and chronic tolerance development. In S. J. Mulé & H. Brill (Eds.), *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972. Pp. 307-358.
72. Hughes, F. Drugs and drug-related non-drug crime. Unpublished Commission research paper, 1971.
73. Hurst, P. B., Bagley, S. K., Chubb, N. C., & Ross, S. Rebound from d-amphetamine. *Psychological Reports*, 1971, 29: 1023-1033.
74. Inge, G. The present state of abuse and addiction to stimulant drugs in Sweden. In F. Sjöqvist & M. Tottie (Eds.), *Abuse of central stimulants*. New York: Raven, 1969. Pp. 187-214.

75. Innes, I. R., & Nickerson, M. Drugs acting on postganglionic adrenergic nerve endings and structures innervated by them (sympathomimetic drugs). In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 478-523.
76. Ivy, A. C., & Goetzl, F. R. *d*-desoxyephedrine: A review. *War Medicine*, 1943, 3: 60-67.
77. Jaffe, J. H. Drug addiction and drug abuse. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 276-313.
78. Jasinski, D. R., Mutt, J. G., & Carr, C. Evaluation in man of the effects of a mixture of morphine and d-amphetamine (MA). (Abstract) *Federation Proceedings*, 1972, 31: 530.
79. Jonsson, L.-E., Gunne, L.-M. & Änggård, E. Effects of alpha-methyltyrosine in amphetamine-dependent subjects. *Pharmacologia Clinica*, 1969, 2: 27-29.
80. Kaistha, K. K. Drug abuse screening programs: Detection procedures, development costs, street-sample analysis, and field tests. *Journal of Pharmaceutical Sciences*, 1972, 61: 655-679.
81. Kalant, H., LeBlanc, A. E., & Gibbins, R. J. Tolerance to and dependence on, some non-opiate psychotropic drugs. *Pharmacological Reviews*, 1971, 23: 135-191.
82. Kalant, O. J. *The amphetamines: Toxicity and addiction*. Toronto: University of Toronto Press, 1966.
83. Kane, F. J., Keeler, M. H., & Reifler, C. B. Neurological crises following methamphetamine. (Letter to the editor) *Journal of the American Medical Association*, 1969, 210: 556-557.
84. Kaplan, H. L., Forney, R. B., Richards, A. B., & Hughes, F. W. Dextro-amphetamine, alcohol and dextro-amphetamine-alcohol combination and mental performance. In *Proceedings of the IVth International Conference on Alcohol and Traffic Safety*. 1966. Pp. 211-214.
85. Kasirsky, G., & Transy, M. Teratogenic effects of methamphetamine in mice and rabbits. *Teratology*, 1971, 4: 131-134.
86. Kealey, O. J. (Riverside Hospital, Ottawa) Personal communication to the Commission, April, 1971.
87. Kibrick, E., & Smart, R. G. Psychotropic drug use and driving risk: A review and analysis. *Journal of Safety Research*, 1970, 2: 73-85.
88. Kosman, M. E., & Unna, K. R. Effects of chronic administration of amphetamines and other stimulants on behavior. *Clinical Pharmacology and Therapeutics*, 1968, 9: 240-254.
89. Kramer, J. C. Some observations on and a review of the effects of high-dose use of amphetamines. In C. J. C. Zarafonitis (Ed.), *Drug abuse: Proceedings of the International Conference*. Philadelphia: Lea & Febiger, 1972. Pp. 253-261.
90. Kramer, J. C., Fischman, V. S., & Littlefield, D. C. Amphetamine abuse: Pattern and effects of high doses taken intravenously. *Journal of the American Medical Association*, 1967, 201: 305-309.
91. Ladd, E. T. Pills for classroom peace? *Saturday Review*, November 21, 1970: 66-68 & 81-83.
92. Leake, C. D. *The amphetamines: Their actions and uses*. Springfield, Ill.: C. C. Thomas, 1958.
93. LeBlanc, A. E. Kalant, H., & Kalant, O. J. The psychopharmacology of amphetamine dependence. *Applied Therapeutics*, 1970, 12: 30-34.
94. Lehmann, H. E., Ananth, J. V., Geagea, K. C., & Ban, T. A. Treatment of depression with dexedrine and demerol. *Current Therapeutic Research*, 1971, 13: 42-49.

95. Lemere, F. The danger of amphetamine dependency. *American Journal of Psychiatry*, 1966, 123: 569-572.
96. Leute, R. (Syva Company, Palo Alto, California) Personal communication to the Commission, 1973.
97. Levine, S. V., Lloyd, D. D., & Longdon, W. H. The speed user: Social and psychological factors in amphetamine abuse. *Canadian Psychiatric Association Journal*, 1972, 17: 229-241.
98. Levy, B., & Ahlquist, R. P. Adrenergic drugs. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (4th ed.) New York: McGraw-Hill, 1970. Pp. 463-501.
99. Marshman, J. A., & Gibbins, R. J. A note on the composition of illicit drugs. *Ontario Medical Review*, 1970, 37: 429-430, & 441.
100. Masaki, T. The amphetamine problem in Japan. In World Health Organization, Expert Committee on Drugs Liable to Produce Addiction. *Sixth Report*. (WHO Technical Report Series No. 102), 1956. Pp. 14-21.
101. McCormick, T. C., Jr. Toxic reactions to amphetamines. *Diseases of the Nervous System*, 1962, 23: 219-224.
102. Mercer, G. W. The role of personality in determining reactions to non-narcotic drugs. Unpublished manuscript, Project J-183, Substudy 2-Me-71, Addiction Research Foundation, Toronto, 1971.
103. Miller, M. M. Amphetamine sulphate in aborting the acute alcoholic cycle. *American Journal of Psychiatry*, 1944, 100: 800-802.
104. Miller, R. D., Brewster, J., & Leathers, B. Survey of Ottawa area physicians regarding the non-medical use of drugs. Unpublished Commission research project, 1971.
105. Miller, R. D., & Hemmings, B. Drug-induced poisoning and death in Canada. Unpublished Commission research project, 1973.
106. Miller, R. D., Oestreicher, P., Marshman, J., Beckstead, H., Paterson, R., Larsson, G., Hemmings, B., Green, M. & Farmilo, C. Chemical analysis of illicit drugs in Canada. Unpublished Commission research project, 1972.
107. Mulé, S. J. Methods for the analysis of narcotic analgesics and amphetamines. *Journal of Chromatographic Sciences*, 1972, 10: 275-282.
108. Napke, E. (Head, Poison Control and Drug Adverse Reaction Section, Department of National Health and Welfare, Ottawa) Preliminary Poison Control Program Statistics (1971) communicated to the Commission, 1973.
109. Narcotic Addiction Foundation of British Columbia. Brief submitted to the Commission at Vancouver, October 30, 1969.
110. New York State Narcotic Addiction Control Commission. Amphetamines: Up, up and away. *Attack on Narcotic Addiction and Drug Abuse*, 1959, 3(3): 3.
111. Newfoundland Department of Health and Newfoundland Medical Association. Survey of doctors. Cited in the brief submitted to the Commission by the Newfoundland Medical Association at St. John's, October 24, 1970.
112. Nichols, J. L. Drug use and highway safety: A review of the literature. Report DOT-HS-012-1-019. Unpublished manuscript, U.S. Department of Transportation, National Highway Traffic Safety Administration, Washington, D.C., July, 1971.
113. Oswald, I., & Thacore, V.R. Amphetamine and phenmetrazine addiction: Physiological abnormalities in the abstinence syndrome. *British Medical Journal*, 1963, 2: 427-431.
114. Pasneau, R. O., Naitoh, P., Stier, S., & Kollar, E. J. The psychological effects of 205 hours of sleep deprivation. *Archives of General Psychiatry*, 1968, 18: 496-505.
115. Rawlin, J. W. Street level abuse of amphetamines. In J. R. Russo (Ed.), *Amphetamine abuse*. Springfield, Ill.: C. C. Thomas, 1968. Pp. 51-65.

116. Reifenstein, E. E., Jr., & Davidoff, E. The treatment of alcoholic psychoses with benzedrine sulfate: Preliminary report. *Journal of the American Medical Association*, 1938, 110: 1811-1812.
117. Repo, S. Drug control in the classroom. *This Magazine is about Schools*, 1971, 5: 92-112.
118. Riley, R. E. (Statistics Canada, Health and Welfare Division, Mental Health Section, Ottawa) Unpublished information communicated to the Commission, 1972.
119. Robinson, A. E. Forensic toxicology of psycho-active drugs. *Chemistry in Britain*, 1972, 8: 118-123.
120. Rogers, B., Stein, J. P., Martin, N., & Farmilo, R. A study of innovative services in Canada. Unpublished Commission research project, 1970-71.
121. Rotenburg, G. N., & Hughes, F. N. (Eds.) *Compendium of pharmaceuticals and specialties (Canada) 1973*. (8th ed.) Toronto: Canadian Pharmaceutical Association, 1973.
122. Rumbaugh, C. L., Bergeron, R. T., Scanlan, R. L., Teal, J. S., Segall, H. D., Fang, H. C. H., & McCormick, R. Cerebral vascular changes secondary to amphetamine abuse in the experimental animal. *Neuroradiology*, 1971, 101: 345-351.
123. Russo, J. R. (Ed.) *Amphetamine abuse*. Springfield: Ill.: C. C. Thomas, 1968.
124. Rylander, G. Psychoses and the punding and choreiform syndromes in addiction to central stimulant drugs. *Psychiatry, Neurologia, Neurochirurgia*, 1972, 75: 203-212.
125. Scheel-Kruger, J. Some aspects of the mechanism of action of various stimulant amphetamine analogues. *Psychiatry, Neurologia, Neurochirurgia*, 1972, 75: 179-192.
126. Schick, J. F. E., Smith, D. E., & Meyers, F. H. Use of amphetamines in the Haight-Ashbury subculture. *Journal of Psychedelic Drugs*, 1969, 2: 146-185.
127. Seevers, M. H. Amphetamine and alcohol (Questions and answers). *Journal of the American Medical Association*, 1963, 184: 843.
128. Siegel, H. Human pulmonary pathology associated with narcotic and other addictive drugs. *Human Pathology*, 1972, 3: 55-56.
129. Smart, R. G., Schmidt, W., & Bateman, K. Psychoactive drugs and traffic accidents. *Journal of Safety Research*, 1969, 1: 67-73.
130. Smith, D. E. Acute amphetamine toxicity. *Journal of Psychedelic Drugs*, 1969, 2: 47-53.
131. Smith, D. E. Changing patterns in the Haight-Ashbury. *California Medicine*, 1969, 110: 151-157.
132. Smith, D. E., & Fischer, C. M. An analysis of 310 cases of acute high-dose methamphetamine toxicity in Haight-Ashbury. *Clinical Toxicology*, 1970, 3: 117-124.
133. Smith, R. C. The marketplace of speed: Compulsive methamphetamine abuse and violence. (Doctoral dissertation, University of California, Berkeley) Ann Arbor, Mich.: University Microfilms, 1970. No. 70-12,983.
134. Stein, L., & Wise, C. D. Behavioral pharmacology of central stimulants. In W. G. Clark & J. del Giudice (Eds.), *Principles of psychopharmacology*. New York: Academic, 1970, Pp. 313-326.
135. Stolk, J. M., & Rech, R. H. Antagonism of d-amphetamine by alpha-methyl-L-tyrosine: Behavioral evidence for the participation of catecholamine stores and synthesis in the amphetamine stimulant response. *Neuropharmacology*, 1970, 9: 249-263.
136. Stone, M. L., Salerno, L. J., Green, M., & Zelson, C. Narcotic addiction in pregnancy. *American Journal of Obstetrics and Gynecology*, 1971, 109: 716-723.

A The Drugs and Their Effects — References

137. Sunshine, I. (Ed.) *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
138. Sweden. Narkomanvards kommittee. [Committee on Drug Abuse.] Abuse of stimulants. [Missbruk av central-stimularande medel.] In the committee's *Narkotika problemet*. [The narcotics problem.] Vol. 3. Stockholm: Statens offentliga utredningar Socialdepartementet, 1969. Pp. 87-122.
139. Taylor, N. *Narcotics: Nature's dangerous gifts*. New York: Dell, 1966.
140. Tice, P., & Spooner, C. E. Antagonism of d-amphetamine by methysergide. (Abstract) *Pharmacologist*, 1970, 12: 226.
141. Truitt, E. B., Jr. Pharmacological activity in a metabolite of 1-trans- Δ^8 -tetrahydrocannabinol. (Abstract) *Federation Proceedings*, 1970, 29: 619.
142. United States, Ninety-first Congress, House of Representatives, Select Committee on Crime. *Amphetamines*. Washington, D.C.: U.S. Government Printing Office, 1971.
143. United States, President's Commission on Law Enforcement and Administration of Justice. *Task force report: Narcotics, marijuana and dangerous drugs. Findings and recommendations*. Washington, D.C.: U.S. Government Printing Office, 1969.
144. Van Rossum, J. M. Psychopharmacology of amphetamines. *Psychiatria, Neurologia, Neurochirurgia*, 1972, 75: 165-178.
145. Waller, J. A. Drugs and highway crashes. *Journal of the American Medical Association*, 1971, 215: 1477-1482.
146. Watson, R. K., Hartman, E., & Schildkraut, J. J. Amphetamine withdrawal. (Abstract) *Psychophysiology*, 1972, 9: 138.
147. Weiss, B., & Laties, V. G. Enhancement of human performance by caffeine and the amphetamines. *Pharmacological Review*, 1962, 4: 1-36.
148. Weiss, S. R., Raskind, R., Morganstern, N. L., Pytlyk, P. J., & Baiz, T. C. Intracerebral and subarachnoid hemorrhage following use of methamphetamine ("speed"). *International Surgery*, 1970, 53: 123-127.
149. Wilson, L., Taylor, J. D., Nash, C. W., & Cameron, D. F. The combined effects of ethanol and amphetamine sulfate on performance of human subjects. *Canadian Medical Association Journal*, 1966, 94: 478-484.
150. World Health Organization, Expert Committee on Addiction-Producing Drugs. *Thirteenth Report*. (WHO Technical Report Series No. 273), 1964. Pp. 14-15.

A.4 COCAINE

1. Amit, Z., & Corcoran, M. Cocaine. Unpublished Commission research paper, 1971.
2. Baden, M. M., Valanju, N. N., Verma, S. K., & Valanju, S. N. Confirmed identification of biotransformed drugs of abuse in urine. *American Journal of Clinical Pathology*, 1972, 57: 43-51.
3. Beckstead, H. D., & French, W. N. Some analytical methods for drugs subject to abuse. Ottawa: Department of National Health and Welfare, 1971.
4. Bejerot, N. *Addiction and society*. Springfield, Ill.: C. C. Thomas, 1970.
5. Bejerot, N. A comparison of the effects of cocaine and synthetic central stimulants. *British Journal of Addiction*, 1970, 65: 35-37.
6. Blejer-Prieto, H. Coca leaf and cocaine addiction—Some historical notes. *Canadian Medical Association Journal*, 1965, 93: 700-704.
7. Blum, R. H., & Associates. *Society and drugs*. San Francisco: Jossey-Bass, 1969.

8. Brecher, E. M., & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marihuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
9. Buck, A. A., Sasaki, T. T., Hewitt, J. J., & MacRae, A. A. Coca chewing and health: An epidemiological study among residents of a Peruvian village. *American Journal of Epidemiology*, 1968, 88: 159-177.
10. Canada, Department of National Health and Welfare, Food and Drug Directorate (now Health Protection Branch), Biostatistics Division. Poison control program statistics. Unpublished manuscripts, Ottawa, 1969, 1970.
11. Canada, Statistics Canada. *Causes of death, Canada: Provinces by sex and Canada by sex and age (1969)*. Ottawa: Information Canada, 1970.
12. Canada, Statistics Canada. *Causes of death: Provinces by sex and Canada by sex and age (1970)*. Ottawa: Information Canada, 1971.
13. Canada, Statistics Canada. *Causes of death: Provinces by sex and Canada by sex and age (1971)*. Ottawa: Information Canada, 1972.
14. Canada, Statistics Canada. *Mental health statistics*. Vol. 1. *Institutional admissions and separations (1970)*. Ottawa: Information Canada, 1972.
15. Chopra, I. C., & Chopra, R. N. The cocaine problem in India. *Bulletin on Narcotics*, 1958, 10(2): 12-24.
16. Clarke, E. G. C. (Ed.) *Isolation and identification of drugs*. London: Pharmaceutical, 1969.
17. Dole, V. P., Crowther, A., Johnson, J., Monsalvatge, M., Biller, B., & Nelson, S. S. Detection of narcotic, sedative, and amphetamine drugs in urine. *New York State Journal of Medicine*, 1972, 72: 471-476.
18. Eddy, N. B., Halbach, H., Isbell, H., & Seevers, M. H. Drug dependence: Its significance and characteristics. *Bulletin of the World Health Organization*, 1965, 32: 721-733.
19. Freud, S. On the general effects of cocaine (1885). *Drug Dependence*, 1970, 5: 15-17.
20. Gay, G. R., Inaba, D. S., Sheppard, C. W., & Newmeyer, J. A. "High, high, Miss American pie". New debut for an old girl: Cocaine in perspective. Unpublished manuscript, Haight-Ashbury Free Medical Clinic, San Francisco, Calif., 1972.
21. Goddard, D., Goddard, S. N. de, & Whitehead, P. C. Social factors associated with coca use in the Andean region. *International Journal of the Addictions*, 1969, 4: 577-590.
22. Halisky, T. (Field Operations Directorate, Health Protection Branch, Department of National Health and Welfare, Ottawa) Unpublished information communicated to the Commission, 1972.
23. Hamilton Academy of Medicine. Physician survey on drug problems. Cited in brief submitted to the Commission, May 15, 1970.
24. Hemmings, B., & Miller, R. D. Non-medical use as a factor in hospitalization: A survey of Canadian psychiatric hospital records. Unpublished Commission research project, 1971.
25. Hopkins, J. Cocaine: A flash in the pan, a pain in the nose. *Rolling Stone*, April 29, 1971: 1 & 6.
26. Jaffe, J. H. Drug addiction and drug abuse. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 276-313.
27. Jones, E. *The life and work of Sigmund Freud*. New York: Basic Books, 1953.
28. Kahn, E. J. *The big drink*. New York: Random House, 1960.

A The Drugs and Their Effects — References

29. Kaistha, K. K. Drug abuse screening programs: Detection procedures, development costs, street-sample analysis, and field tests. *Journal of Pharmacological Sciences*, 1972, 61: 655-679.
30. Kane, F. J., & Taylor, T. W. Mania associated with the use of I.N.H. and cocaine. *American Journal of Psychiatry*, 1963, 119: 1098-1099.
31. Kosman, M. E., & Unna, K. R. Effects of chronic administration of the amphetamines and other stimulants on behavior. *Clinical Pharmacology and Therapeutics*, 1968, 9: 240-254.
32. Kramer, J. C., Fischman, V. S., & Littlefield, D. C. Amphetamine abuse: Pattern and effects of high doses taken intravenously. *Journal of the American Medical Association*, 1967, 201: 305-309.
33. Leute, R. (Syva Company, Palo Alto, California) Personal communication to the Commission, 1973.
34. Lewin, L. *Phantastica, narcotic and stimulating drugs*. (1924) London: Routledge and Kegan Paul, 1931.
35. Mariani, A. *Coca and its therapeutic application*. New York: J. N. Jaros, 1896.
36. Marshman, J. A., & Gibbins, R. J. A note on the composition of illicit drugs. *Ontario Medical Review*, 1970, 37: 429-430 & 441.
37. Maurer, D. W., & Vogel, V. H. *Narcotics and narcotic addiction*. Springfield, Ill.: C. C. Thomas, 1967.
38. Miller, R. D., Brewster, J., & Leathers, B. Survey of Ottawa area physicians regarding the non-medical use of drugs. Unpublished Commission research project, 1971.
39. Miller, R. D., & Hemmings, B. Drug induced poisoning and death in Canada. Unpublished Commission research project, 1973.
40. Miller, R. D., Oestreicher, P., Marshman, J., Beckstead, H., Paterson, R., Larsson, G., Hemmings, B., Green, M., & Farmilo, C. Chemical analysis of illicit drugs in Canada. Unpublished Commission research project, 1972.
41. Montesinos, F. Metabolism of cocaine. *Bulletin on Narcotics*, 1967, 17: 11-15.
42. Murphy, H. B. M., & Negrete, J. C. The effects of abstinence and of retraining on the chewer of coca-leaf. *Bulletin on Narcotics*, 1969, 21: 41-47.
43. Musto, D. F. A study in cocaine: Sherlock Holmes and Sigmund Freud. *Journal of the American Medical Association*, 1968, 204: 125-130.
44. Napke, E. (Head, Poison Control and Drug Adverse Reaction Section, Department of National Health and Welfare, Ottawa) Preliminary Poison Control Program Statistics (1971) communicated to the Commission, 1973.
45. Narcotic Addiction Foundation of British Columbia. Brief submitted to the Commission at Vancouver, October 30, 1969.
46. Negrete, J. C., & Murphy, H. B. M. Psychological deficit in chewers of coca leaf. *Bulletin on Narcotics*, 1967, 19: 11-18.
47. Newfoundland Department of Health and Newfoundland Medical Association. Survey of doctors. Cited in Newfoundland Medical Association brief submitted to the Commission, St. John's, Newfoundland, October 24, 1970.
48. Riley, R. E. (Statistics Canada, Health and Welfare Division, Mental Health Section, Ottawa) Unpublished information communicated to the Commission, 1972.
49. Ritchie, J. M., Cohen, P. J., & Dripps, R. D. Cocaine, procaine and other synthetic local anesthetics. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 371-401.
50. Rogers, B., Stein, J. P., Martin, N., & Farmilo, R. A study of innovative services in Canada. Unpublished Commission research project, 1970-71.

51. Student Association for the Study of the Hallucinogens. STASH fact sheet on cocaine. *Grassroots* 1972. Pp. 1-4.
52. Sunshine, I. (Ed.), *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
53. Tatum, A. L., & Seevers, M. H. Experimental cocaine addiction. *Journal of Pharmacological and Experimental Therapeutics*, 1929, 36: 401-410.
54. Taylor, N. *Narcotics: Nature's dangerous gifts*. New York: Dell, 1966.
55. Truant, A. P., & Takman, B. Local anesthetics. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) Toronto: McGraw-Hill, 1965. Pp. 133-156.
56. Van Rossum, J. M. Psychopharmacology of amphetamines. *Psychiatria, Neurologia, Neurochirurgia*, 1972, 75: 165-178.
57. Zapata-Ortiz, V. The chewing of coca leaves in Peru. *International Journal of the Addictions*, 1970, 5: 287-294.

A.5 HALLUCINOGENS

1. Aaronson, B., & Osmond, H. *Psychedelics: The uses and implications of hallucinogenic drugs*. New York: Doubleday, 1970.
2. Aase, J. M., Laestadius, N., & Smith, D. W. Children of mothers who took L.S.D. in pregnancy. *Lancet*, 1970, 2: 100-101.
3. Aberle, D. F. *The Peyote religion among the Navaho*. Chicago: Aldine, 1966.
4. Abramson, H. A. Lysergic acid diethylamide (LSD-25): XXX. The questionnaire technique with notes on its use. *Journal of Psychology*, 1960, 49: 57-65.
5. Abramson, H. A., Jarvik, M. E., Gorin, M. H., & Hirsch, M. W. Lysergic acid diethylamide (LSD-25): XVII. Tolerance development and its relationship to a theory of psychosis. *Journal of Psychology*, 1956, 41: 81-105.
6. Abramson, H. A., Jarvik, M. E., Kaufman, M. R., Kornetsky, C., Levine, A., & Wagner, M. Lysergic acid diethylamide (LSD-25): I. Physiological and perceptual responses. *Journal of Psychology*, 1955, 39: 3-60.
7. Abramson, H. A., Kornetsky, C., Jarvik, M. E., Kaufman, M. R., & Ferguson, M. W. Lysergic acid diethylamide (LSD-25): XI. Content analysis of clinical reactions. *Journal of Psychology*, 1955, 40: 53-60.
8. Abuzzahab, F. F., Yunis, J. J., Schiele, B. S., & Marazzi, A. S. A controlled study of the effects of LSD-25 on human chromosomes. In J. Wortis (Ed.), *Recent advances in biological psychiatry*. Vol. II. New York: Plenum, 1969.
9. Aghajanian, G. K., & Bing, O. H. L. Persistence of lysergic acid diethylamide in the plasma of human subjects. *Clinical Pharmacology and Therapeutics*, 1964, 5: 611-614.
10. Alexander, G. J., Miles, B. E., Gold, G. M., & Alexander, R. B. LSD: Injection early in pregnancy produces abnormalities in offspring of rats. *Science*, 1967, 157: 459-460.
11. Allegro, J. M. *The sacred mushroom and the cross*. N.Y.: Bantam, 1971.
12. Alles, G. A. Some relations between chemical structure and physiological action of mescaline and related compounds. In H. A. Abramson (Ed.), *Neuropharmacology: Transactions of the Fourth Conference, 1957*. New York: Josiah Macy Junior Foundation, 1959. Pp. 181-268.
13. Amit, Z., & Corcoran, M. Derivatives of mescaline (MDA, MMDA, TMA). Unpublished Commission research paper, 1971.
14. Angrist, B. M. Reported effects of "STP"—The unreliability of hippies as reporters of drug effects. *British Journal of Addiction*, 1969, 64: 231-234.

15. Annis, H. M., Klug, R., & Blackwell, D. Drug use among high school students in Timmins. Unpublished manuscript, Project J-183, Substudy 1-38 & 39, & B1-71, Addiction Research Foundation, Toronto, 1971.
16. Aronson, H., Silverstein, A. B., & Klee, G. D. The influence of lysergic acid diethylamide (LSD-25) on subjective time. *Archives of General Psychiatry*, 1959, 1: 469-472.
17. Auerbach, R. The hallucinogens and embryonic malformations. *STASH Capsules*, 1971, 3(2): 1.
18. Auerbach, R., & Rugowski, J. A. Lysergic acid diethylamide: Effect on embryos. *Science*, 1967, 157: 1325-1326.
19. Baden, M. M., Valanju, N. N., Verma, S. K., & Valanju, S. N. Confirmed identification of biotransformed drugs of abuse in urine. *American Journal of Clinical Pathology*, 1972, 57: 43-51.
20. Baker, A. A. Hospital admissions due to lysergic-acid diethylamide. *Lancet*, 1970, 4: 714-715.
21. Baker, E. F. W. LSD psychotherapy. Paper presented at the Second Conference on the Use of LSD in Psychotherapy, Amityville, N.Y., 1965.
22. Baker, E. F. W. The use of lysergic acid diethylamide (LSD) in psychotherapy. *Canadian Medical Association Journal*, 1964, 91: 1200-1202.
23. Balestrieri, A., & Fontanari, D. Acquired and crossed tolerance to mescaline, LSD-25, and BOL-148. *Archives of General Psychiatry*, 1959, 1: 279-282.
24. Ban, T. A., Lohrenz, J. J., & Lehmann, H. E. Observations on the action of sernyl —A new psychotropic drug. *Canadian Psychiatric Association Journal*, 1961, 6: 150-157.
25. Barber, T. X. *LSD, marihuana, yoga, and hypnosis*. Chicago: Aldine, 1970.
26. Barr, H. L., Langs, R. J., Holt, R. R., Goldberger, L., & Klein, G. S. *LSD: Personality and experience*. New York: Wiley-Interscience, 1972.
27. Barron, F. X., Jarvik, M. E., & Bunnell, S., Jr. Hallucinogenic drugs. *Scientific American*, 1964, 210(4): 29-37.
28. Barron, S. P. A clinical examination of chronic LSD use in the community. *Comprehensive Psychiatry*, 1970, 11: 69-79.
29. Becker, H. S. Becoming a marihuana user. *American Journal of Sociology*, 1953, 59: 235-242.
30. Becker, H. S. History, culture and subjective experience: An exploration of the social bases of drug-induced experiences. *Journal of Health and Social Behavior*, 1967, 8(3): 163-176.
31. Becker, H. S. Marihuana use and social control. *Social Problems*, 1955, 3: 35-44.
32. Beckstead, H. D., & French, W. N. *Some analytical methods for drugs subject to abuse*. Ottawa: Department of National Health and Welfare, 1971.
33. Bercel, N. A., Travis, L. E., Olinger, L. B., & Dreikurs, E. Model psychoses induced by LSD-25 in normals: I. Psycho-physiological investigations with special reference to the mechanism of the paranoid reaction. *Archives of Neurology and Psychiatry*, 1956, 75: 588-611.
34. Bergman, R. L. Navajo peyote use: Its apparent safety. *American Journal of Psychiatry*, 1971, 128: 695-699.
35. Beringer, K. *Der Meskalinrausch*. Berlin: Springer, 1927.
36. Berlin, L., Guthrie, T., Weider, A., Goodell, H., & Wolff, H. G. Studies in human cerebral function: The effects of mescaline and lysergic acid on cerebral processes pertinent to creative activity. *Journal of Nervous and Mental Diseases*, 1955, 122: 487-491.

37. Bialos, D. S. Adverse marijuana reactions: A critical examination of the literature with selected case material. *American Journal of Psychiatry*, 1970, 127(6): 119-123.
38. Bilodeau, L., & Jacob, A. La prévalence de l'usage des drogues de 1969 à 1971, chez les étudiants du secondaire et du collégial de l'Île de Montréal: Quelques résultats généraux. Québec: Office de la Prévention et du Traitement de l'Alcoolisme et des Autres Toxicomanies, 1971.
39. Blacker, K. H., Jones, R. T., Stone, G. C., & Pfefferbaum, D. Chronic users of LSD: "The acidheads". *American Journal of Psychiatry*, 1968, 125: 341-351.
40. Blanc, W. A., Mattison, D. R., Kane, R., & Chauhan, P. L.S.D., intrauterine amputations, and amniotic-band syndrome. *Lancet*, 1971, 2: 158-159.
41. Blum, R. H., & Associates. *Utopiates: Use and users of LSD*. New York: Atherton, 1964.
42. Blumenfeld, M. Flashback phenomena in basic trainees who enter the U.S. Air Force. *Military Medicine*, 1971, 136: 39-41.
43. Bogdanoff, B., Rorke, L. B., Yanoff, M., & Warren, W.S. Brain and eye abnormalities: Possible sequelae to prenatal use of multiple drugs including LSD. *American Journal of Diseases of Children*, 1972, 123: 145-148.
44. Brawley, P., & Duffield, J. C. The pharmacology of hallucinogens. *Pharmacological Reviews*, 1972, 24: 31-66.
45. Brecher, E. M., & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
46. Brown, B. B. Subjective and EEG responses to LSD in visualizer and non-visualizer subjects. *Electroencephalography and Clinical Neurophysiology*, 1968, 25: 372-379.
47. Canada, Department of National Health and Welfare, Food and Drug Directorate (now Health Protection Branch), Biostatistics Division. Poison control program statistics. Unpublished manuscripts, Ottawa, 1970, 1971, 1972.
48. Canada, Commission of Inquiry into the Non-Medical Use of Drugs. *Cannabis*. Ottawa: Information Canada, 1972.
49. Canada, Dominion Bureau of Statistics, Health and Welfare Division. *Manual for the classification of psychiatric diagnoses*. Ottawa: Queen's Printer, 1969.
50. Canada, Statistics Canada. *Causes of death: Provinces by sex and Canada by sex and age (1970)*. Ottawa: Information Canada, 1971.
51. Canada, Statistics Canada. *Mental health statistics*. Vol. 1. *Institutional admissions and separations (1970)*. Ottawa: Information Canada, 1972.
52. Carakhushansky, G., Neu, R. L., & Gardner, L. I. Lysergide and cannabis as possible teratogens in man. *Lancet*, 1969, 1: 150-151.
53. Castaneda, C. *Journey to Ixtlan: The lessons of Don Juan*. New York: Simon & Schuster, 1972.
54. Castaneda, C. *A separate reality: Further conversations with Don Juan*. New York: Simon & Schuster, 1971.
55. Castaneda, C. *The teachings of Don Juan: A Yaqui way of knowledge*. Berkeley, Calif.: University of California Press, 1968.
56. Cheek, F. E., Newell, S., & Sarett, M. The down-head behind an up-head—The heroin addict takes LSD. *International Journal of the Addictions*, 1969, 4: 101-119.
57. Cimbura, G. 3,4-Methylenedioxyamphetamine (MDA): Analytical and forensic aspects of fatal poisoning. *Journal of Forensic Sciences*, 1972, 17: 329-333.
58. Clarke, E. G. C. (Ed.), *Isolation and identification of drugs*. London: Pharmaceutical, 1969.

59. Cohen, B. D., Rosenbaum, G., Luby, E. D., & Gottlieb, J. S. Comparison of phencyclidine hydrochloride (sernyl) with other drugs. *Archives of General Psychiatry*, 1962, 6: 395-401.
60. Cohen, M., Marinello, M., & Bach, N. Chromosomal damage in human leukocytes by lysergic acid diethylamide. *Science*, 1967, 155: 1417-1419.
61. Cohen, S. *The beyond within: The LSD story*. (2nd ed.) New York: Atheneum, 1967.
62. Cohen, S. A classification of LSD complications. *Psychosomatics*, 1966, 7: 182-186.
63. Cohen, S. *The drug dilemma*. New York: McGraw-Hill, 1969.
64. Cohen, S. The hallucinogens. In W. G. Clark *et al.* (Eds.), *Principles of psychopharmacology*. New York: Academic, 1970. Pp. 489-503.
65. Cohen, S. Lysergic acid diethylamide: Side effects and complications. *Journal of Nervous and Mental Diseases*, 1960, 130: 30-40.
66. Cohen, S. Psychotomimetic agents. *Annual Review of Pharmacology*, 1967, 7: 301-318.
67. Cohen, S. A quarter century of research with LSD. In J. T. Ungerleider (Ed.), *The problem and prospects of LSD*. Springfield, Ill.: C. C. Thomas, 1968. Pp. 22-44.
68. Cohen, S., & Ditman, K. S. Complications associated with lysergic acid diethylamide (LSD-25). *Journal of the American Medical Association*, 1962, 189: 181-182.
69. Cohen, S., & Ditman, K. S. Prolonged adverse reactions to lysergic acid diethylamide. *Archives of General Psychiatry*, 1963, 8: 475-480.
70. Cohen, S., & Edwards, A. E. LSD and organic brain impairment. *Drug Dependence*, 1969, 2: 1-4.
71. Collaborative Research, Inc. Radioimmunoassay for LSD. Unpublished manuscript, Waltham, Mass., 1972.
72. Corey, M. J., Andrews, J. C., McLeod, M. J., MacLean, J. R., & Wilby, W. E. Chromosome studies on patients (in vivo) and cells (in vitro) treated with lysergic acid diethylamide. *New England Journal of Medicine*, 1970, 282: 939-943.
73. Davies, B. M., & Beech, H. R. The effects of 1-arylcylohexylamine (Sernyl) on twelve normal volunteers. *Journal of Mental Sciences*, 1960, 106: 912-924.
74. Denson, R. Complications of therapy with lysergide. *Canadian Medical Association Journal*, 1969, 101: 53-57.
75. Denson, R., & Sydiaha, D. A controlled study of LSD treatment in alcoholism and neurosis. *British Journal of Psychiatry*, 1970, 116: 443-445.
76. Dishotsky, N. I., Loughman, W. D., Mogar, R. E., & Lipscomb, W. R. LSD and genetic damage. *Science*, 1971, 172: 431-440.
77. Ditman, K. S., Moss, T., Forgy, E. W., Zunin, L. M., Lynch, R. D., & Funk, W. A. Dimensions of the LSD, methylphenidate, and chlordiazepoxide experiences. *Psychopharmacologia*, 1969, 14: 1-11.
78. Domino, E. F. Neurobiology of phencyclidine (sernyl), a drug with an unusual spectrum of pharmacological activity. *International Review of Neurobiology*, 1964, 6: 303-347.
79. Domino, E. F. Pharmacology of madness—The hallucinogens. In C. J. D. Zaranetis (Ed.), *Drug abuse: Proceedings of the International Conference*. Philadelphia: Lea & Febiger, 1972. Pp. 307-320.
80. Domino, E. F., Chodoff, P., & Corssen, G. Pharmacologic effects of CI-581, a new dissociative anesthetic, in man. *Clinical Pharmacology and Therapeutics*, 1965, 6: 279-291.
81. Dorrance, D., Janiger, O., & Teplitz, R. L. In vivo effects of illicit hallucinogens on human lymphocyte chromosomes. *Journal of the American Medical Association*, 1970, 212: 1488-1491.

82. Eller, J. L., & Morton, J. M. Bizarre deformities in offspring of user of lysergic acid diethylamide. *New England Journal of Medicine*, 1970, 283: 395-397.
83. Evans-Wentz, W. Y. (Ed.), *The Tibetan book of the dead*. New York: Oxford University Press, 1960.
84. Fabro, S., & Sieber, S. M. Is lysergide a teratogen? *Lancet*, 1968, 1: 639.
85. Faillace, L. A., Snyder, S. H., & Weingartner, H. 2,5-dimethoxy-4-methylamphetamine: Clinical evaluation of a new hallucinogenic drug. *Journal of Nervous and Mental Diseases*, 1970, 150: 119-126.
86. Fairchild, M. D., Alles, G. Z., Jenden, D. J., et al. The effects of mescaline, amphetamines and four-ring substituted amphetamine derivatives on spontaneous ring electrical activity in the cat. *International Journal of Neuropharmacology*, 1967, 6: 151-167.
87. Fejer, D., & Smart, R. G. Drug use and psychological problems among adolescents in a semi-rural area of Ontario: Haldimand County. Unpublished manuscript, Project J-183, Substudy 4-J.O. & 7-71, Addiction Research Foundation, Toronto, 1971.
88. Fink, M., Simeon, J., Haque, W., & Itil, T. Prolonged adverse reactions to LSD in psychotic subjects. *Archives of General Psychiatry*, 1966, 15: 450-454.
89. Finlator, J. Drug abuse control. *F.B.I. Law Enforcement Bulletin*, 1967, 6: 1-5.
90. Finlator, J. The Playboy panel: The drug revolution. *Playboy*, 1970, 17(2): 53 et passim.
91. Fischer, R. The perception-hallucination continuum (a re-examination). *Diseases of the Nervous System*, 1969, 30: 161-171.
92. Fischer, R. Psychotomimetic drug-induced changes in space and time. In *Proceedings of the Fourth International Congress on Pharmacology*. Vol. III. Basel: Schwabe, 1969.
93. Fischer, R., Hill, R. M., & Warshay, D. Effects of the psychodysleptic drug psilocybin on visual perception: Changes in brightness preference. *Experientia*, 1969, 25: 166-169.
94. Fischer, R., Kappeler, T., Wisecup, P., & Thatcher, K. Personality trait dependent performance under psilocybin. *Diseases of the Nervous System*, 1970, 31: 91-101.
95. Fischer, R., & Warshay, D. Psilocybin-induced autonomic, perceptual, and behavioral change. *Pharmakopsychiatrie Neuro-Psychopharmacologie*, 1968, 1: 291-302.
96. Florio, V., Lipparini, F., Scotti de Carolis, A., & Longo, V. G. EEG and behavioral effects of 2-5-methoxy-4-methyl-amphetamine (DOM, STP). *Archives Internationales de Pharmacodynamie et de Thérapie*, 1969, 180: 81-88.
97. Forrest, J. E., & Heacock, R. A. Nutmeg and mace: The psychotropic spices from *Myristica fragrans* Houtt. In press, *Lloydia (The Journal of Natural Products)*, 1973.
98. Freedman, D. X. On the use and abuse of LSD. *Archives of General Psychiatry*, 1968, 18: 330-347.
99. Friedel, W. LSD and chromosomes. *Chicago Medical School Quarterly*, 1970, 29: 9-23.
100. Friedhoff, A. J., Lynn, F. A., Rosenblatt, G., & Holden, A. Preliminary study of a new anti-depressant drug. *Journal of Nervous and Mental Diseases*, 1958, 127: 185-190.
101. Gagnon, J. Medical-epidemiological aspects of drug dependence: The physiological. Paper presented at the National Symposium on Hospital Responsibility towards Drug Users, Montreal, February, 1971.

102. Geber, W. F. Congenital malformations induced by mescaline, lysergic acid diethylamide, and bromolysergic acid in the hamster. *Science*, 1967, 158: 265-267.
103. Gilmour, D. G., Bloom, A. D., Lele, K. P., Robbins, E. S., & Maximilian, C. Chromosomal aberrations in users of psychoactive drugs. *Archives of General Psychiatry*, 1971, 24: 268-272.
104. Glass, G. S., & Bowers, M. B., Jr. Chronic psychosis associated with long-term psychotomimetic drug abuse. *Archives of General Psychiatry*, 1970, 23: 97-103.
105. Godfrey, K. E. LSD therapy. In R. J. Cantanzaro (Ed.), *Alcoholism: The total treatment approach*. Springfield, Ill.: C. C. Thomas, 1968. Pp. 237-252.
106. Godfrey, K. E. (Topeka Veterans' Hospital, Topeka, Kansas) Unpublished information communicated to the Commission, 1972.
107. Goode, E. Drug use and grades in college. *Nature*, 1971, 234: 225-227.
108. Goode, E. *The marijuana smokers*. New York: Basic Books, 1970.
109. Great Britain, Home Office, Department of Health and Social Security. *Amphetamines, barbiturates, LSD, and cannabis: Their use and misuse*. Reports on Public Health and Medical Subjects, No. 124. London: Her Majesty's Stationery Office, 1970.
110. Great Britain, Home Office, Department of Health and Social Security, Advisory Committee on Drug Dependence. *The amphetamines and lysergic acid diethylamide (LSD)*. London: Her Majesty's Stationery Office, 1970.
111. Grof, S. The use of LSD in psychotherapy. *Journal of Psychedelic Drugs*, 1970, 3: 52-62.
112. Guttmann, E. Artificial psychoses produced by mescaline. *Journal of Mental Science*, 1936, 82: 203-221.
113. Hagenauer, F., Rudy, L. H., & Himwich, H. E. A comparative study of two central nervous system stimulants, MER-22 and S.K.F. #5, on chronic, blocked and withdrawn patients. *American Journal of Psychiatry*, 1956-1957, 113: 840.
114. Halisky, T. (Field Operations Directorate, Health Protection Branch, Department of National Health and Welfare, Ottawa.) Unpublished information provided to the Commission, 1972.
115. Hamilton Academy of Medicine. Physician survey on drug problems. Cited in brief submitted to the Commission, May 15, 1970.
116. Harman, W. W., McKim, R. H., Mogar, R. E., Fadiman, J., & Stolaroff, M. J. Psychedelic agents in creative problem-solving: A pilot study. *Psychological Reports*, 1966, 19: 211-217.
117. Hartman, A. M., & Hollister, L. E. Effects of mescaline, lysergic acid diethylamide and psilocybin on color perception. *Psychopharmacologia*, 1963, 4: 441-451.
118. Heaton, R. K. Psychological determinants of the flashback phenomenon: An experimental approach. Unpublished manuscript, Department of Psychology, University of Washington, Seattle, 1972.
119. Hecht, F., Beals, R. K., Lees, M. H., Jolly, H., & Roberts, P. Lysergic-acid-diethylamide and cannabis as possible teratogens in man. *Lancet*, 1968, 2: 1087.
120. Hekimian, L. J., & Gershon, S. Characteristics of drug abusers admitted to a psychiatric hospital. *Journal of the American Medical Association*, 1968, 205: 125-130.
121. Hemmings, B., & Miller, R. D. Non-medical drug use as a factor in hospitalization: A survey of Canadian psychiatric hospital records. Unpublished Commission research project, 1971.
122. Hemmings, B., & Miller, R. D. Survey of LSD researchers in Canada. Unpublished Commission research project, 1971.
123. Hemmings, B., & Miller, R. D. A survey of provincial coroners regarding drug-related deaths in Canada. Unpublished Commission research project, 1971-72.

124. Henkin, R. On the physiological mechanism of sensory changes produced with LSD-25. (Abstract) *Journal of Clinical Investigation*, 1970, 49: 42a.
125. Hirschhorn, I. D., & Winter, J. C. Mescaline and lysergic acid diethylamide (LSD) as discriminative stimuli. *Psychopharmacologia*, 1971, 22: 64-71.
126. Hoffer, A. LSD: A review of its present status. *Clinical Pharmacology and Therapeutics*, 1965, 6: 183-225.
127. Hoffer, A., & Osmond, H. *The hallucinogens*. New York: Academic, 1967.
128. Hofmann, A. The active principles of the seeds of *rieva corymbosa* and *ipomoea violacea*. *Harvard University Botanical Museum Leaflets*, 1963, 20: 194-212.
129. Hofmann, A. The discovery of LSD and subsequent investigations on naturally occurring hallucinogens. In F. J. Ayd, Jr., & B. Blackwell (Eds.), *Discoveries in biological psychiatry*. Philadelphia: Lippincott, 1970.
130. Hofmann, A. Psychotomimetic drugs: Chemical and pharmacological aspects. *Acta Physiologica et Pharmacologica Neerlandica*, 1959, 8: 240-258.
131. Hollister, L. E. *Chemical psychoses: LSD and related drugs*. Springfield, Ill.: C. C. Thomas, 1968.
132. Hollister, L. E., Kanter, S. L., & Dronkert, A. Antidiuresis in man following lysergic acid diethylamide and mescaline. *Behavioral Neuropsychiatry*, 1970, 2: 50-54.
133. Hollister, L. E., MacNicol, M. F., & Gillespie, H. K. An hallucinogenic amphetamine analog (DOM) in man. *Psychopharmacologia*, 1969, 14: 62-73.
134. Horger, L. M. (Smith, Kline and French Laboratories, Philadelphia, Pennsylvania) Letter to the Commission, March 16, 1971.
135. Horowitz, M. J. Flashbacks: Recurrent intrusive images after the use of LSD. *American Journal of Psychiatry*, 1969, 126: 565-569.
136. Houston, B. K. Review of the evidence and qualifications regarding the effects of hallucinogenic drugs on chromosomes and embryos. *American Journal of Psychiatry*, 1969, 126: 251-253.
137. Hungerford, D. A., Taylor, K. M., Shagass, C., LaBadie, G. U., Balaban, G. B., & Paton, G. R. Cytogenetic effects of LSD-25 therapy in man. *Journal of the American Medical Association*, 1968, 206: 2287-2296.
138. Huxley, A. L. *The doors of perception and Heaven and hell*. Harmondsworth, England: Penguin, 1969.
139. Inglis, A. E. Lysergic acid diethylamide (LSD) and gangrene of the hand. *Review of the Hospital for Special Surgery*, 1972, 1: 22-26.
140. Isbell, H. Comparison of the reactions induced by psilocybin and LSD-25 in man. *Psychopharmacologia*, 1959, 1: 29-38.
141. Isbell, H., Belleville, R. E., Fraser, H. F., Wikler, A., & Logan, C. R. Studies on lysergic acid diethylamide (LSD-25): I. Effects in former morphine addicts and development of tolerance during chronic intoxication. *Archives of Neurology and Psychiatry*, 1956, 76: 468-478.
142. Isbell, H., & Jasinski, D. R. A comparison of LSD-25 with (—)- Δ^9 -trans-tetrahydrocannabinol (THC) and attempted cross tolerance between LSD and THC. *Psychopharmacologia*, 1969, 14: 115-123.
143. Isbell, H., Rosenberg, D. E., Miner, E. J., & Logan, C. R. Tolerance and cross tolerance to scopolamine, N-ethyl-3-piperidyl-benzylate (JB-318) and LSD-25. In P. B. Bradley, F. Flügél & P. Hoch (Eds.), *Neuropsychopharmacology*. Vol. III. Amsterdam: Elsevier, 1964.
144. Isbell, H., Wolbach, A. B., Wikler, A., & Miner, E. J. Cross-tolerance between LSD and psilocybin. *Psychopharmacologia*, 1961, 2: 147-151.

145. Izumi, K. LSD and architectural design. In B. Aaronson & H. Osmond (Eds.), *Psychedelics: The uses and implications of psychedelic drugs*. Garden City, N.Y.: Anchor, 1970. Pp. 381-397.
146. Jackson, B., & Reed, A. Another abusable amphetamine. *Journal of the American Medical Association*, 1970, 211: 830.
147. Jacobson, C. B., & Berlin, C. M. Possible reproductive detriment in LSD users. *Journal of the American Medical Association*, 1972, 222: 1367-1373.
148. Jacobson, C. B., & Magyar, V. L. Genetic evaluation of LSD. *Clinical Proceedings of the Children's Hospital of Washington, D.C.*, 1968, 24: 153-161.
149. Jaffe, J., Dahlberg, C. C., Luria, J., Breskin, S., Chorosh, J., & Lorick, E. Speech rhythms in patient monologues: The influence of LSD-25 and dextroamphetamine. *Biological Psychiatry*, 1972, 4: 243-246.
150. Jarvik, M. E. The behavioral effects of psychotogens. In R. C. DeBold and R. C. Leaf (Eds.), *LSD, man and society*. Middletown, Conn.: Wesleyan Univ. Press, 1967. Pp. 186-206.
151. Joffe, M. An anesthetic for the chimpanzee: 1-(1-phenylcyclohexyl) piperidine—HCl. *Anesthesia and Analgesia*, 1964, 43: 221-226.
152. Joffe, M. Behavioral effects of STP. In R. T. Harris *et al.* (Eds.), *Drug dependence*. Austin, Texas: University of Texas Press, 1970. Pp. 36-40.
153. Johns, T. Detoxification of LSD using niacinamide. Unpublished Commission research project, 1971.
154. Johnson, B. D. Social determinants of the use of drugs by college students. Unpublished doctoral dissertation, Department of Sociology, Columbia University, New York, 1971.
155. Judd, L. L., Brandkamp, W. W., & McGlothlin, W. H. Comparison of the chromosomal patterns obtained from groups of continued users, former users, and nonusers of LSD-25. *American Journal of Psychiatry*, 1969, 126: 626-635.
156. Kaistha, K. K. Drugs abuse screening programs: Detection procedures, development costs, street-sample analysis, and field tests. *Journal of Pharmaceutical Sciences*, 1972, 61: 655-679.
157. Kast, E. C., & Collins, V. J. Study of lysergic acid diethylamide as an analgesic agent. *Anesthesia and Analgesia*, 1964, 43: 285.
158. Kato, T., & Jarvik, L. F. LSD and genetic damage. *Diseases of the Nervous System*, 1969, 30: 43-46.
159. Katz, M. M., Waskow, I. E., & Olsson, J. Characterizing the psychological state produced by LSD. *Journal of Abnormal Psychology*, 1968, 73: 1-14.
160. Keeler, M. H., Reifler, C. B., & Liptzin, M. B. Spontaneous recurrence of marijuana effect. *American Journal of Psychiatry*, 1968, 125: 384-386.
161. Kenna, J. C., & Sedman, G. The subjective experience of time during lysergic acid diethylamide (LSD-25) intoxication. *Psychopharmacologia*, 1964, 5: 280-288.
162. Keup, W. Psychotic symptoms due to cannabis use. *Diseases of the Nervous System*, 1970, 31: 119-126.
163. Kibrick, E., & Smart, R. G. Psychotropic drug use and driving risk: A review and analysis. *Journal of Safety Research*, 1970, 2: 73-85.
164. Kieffer, S. N., & Moritz, T. B. Psychedelic drugs. *Pennsylvania Medicine*, 1968, 71: 57-67.
165. Klee, G. D. Lysergic acid diethylamide (LSD-25) and ego functions. *Archives of General Psychiatry*, 1963, 8: 461-474.
166. Klee, G. D., Bertino, J., Weintraub, W., & Callaway, E. The influence of varying dosage on the effects of lysergic acid diethylamide (LSD-25) in humans. *Journal of Nervous and Mental Diseases*, 1961, 132: 404-409.

167. Klepfisz, A., & Racy, J. Homicide and LSD. *Journal of the American Medical Association*, 1973, 223: 429-430.
168. Klüver, H. Mechanisms of hallucinations. In Q. McNemar and M. A. Merrill (Eds.), *Studies in personality*. New York: McGraw-Hill, 1942.
169. Klüver, H. *Mescal and mechanisms of hallucinations*. Chicago: University of Chicago Press, 1966.
170. Kornetsky, C., Humphries, O., & Evarts, E. V. Comparison of psychological effects of certain centrally acting drugs in man. *Archives of Neurology and Psychiatry*, 1957, 77: 318-324.
171. Kurland, A., Savage, C., Pahnke, W. N., Grof, S., & Olsson, J. E. LSD in the treatment of alcoholics. *Pharmakopsychiatrie Neuro-Psychopharmakologie*, 1971, 4: 83-94.
172. La Barre, W. *The Peyote cult*. (Enl. ed.) Hamden, Conn.: Shoe String, 1964.
173. La Barre, W. Primitive psychotherapy in native American cultures: Peyotism and confession. *Journal of Abnormal and Social Psychology*, 1947, 24: 294-309.
174. Lanphier, C. M., & Phillips, S. B. The non-medical use of drugs and associated attitudes: A national household survey. Unpublished Commission research project, 1971.
175. Lanphier, C. M., & Phillips, S. B. Secondary school students and non-medical drug use: A national survey of students enrolled in grades seven through thirteen. Unpublished Commission research project, 1971.
176. Lanphier, C. M., & Phillips, S. B. University students and non-medical drug use: A national survey. Unpublished Commission research project, 1971.
177. Leary, T. *High priest*. Cleveland: World, 1968.
178. Leary, T., & Clark, W. H. Religious implications of consciousness-expanding drugs. *Religion and Education*, 1963, 1: 251-256.
179. Leary, T., Litwin, G. H., & Metzner, R. Reactions to psilocybin administered in a supportive environment. *Journal of Nervous and Mental Diseases*, 1963, 137: 561-573.
180. Leary, T., Metzner, R., & Alpert, R. *The psychedelic experience*. New Hyde Park, N.Y.: University Books, 1964.
181. Leary, T., Metzner, R., Presnell, M., Weil, G., Schwitzgebel, R., & Kinne, S. A change program for adult offenders using psilocybin. *Psychotherapy*, 1965, 2.
182. Lecker, S. (Montreal General Hospital, Montreal, P.Q.) Personal communication to the Commission, May, 1971.
183. Leckman, J., Ananth, J. V., Ban, T. A., & Lehmann, H. E. Adverse reactions: Predisposing factors. Paper presented to the Canadian Psychiatric Association, Halifax, June, 1971.
184. Levick, L. J., & Levick, S. N. Testicular choriocarcinoma in LSD users: Coincidence or cause? *Journal of American Medical Association*, 1971, 217: 475-476.
185. Levine, J., & Ludwig, A. The LSD controversy. *Comprehensive Psychiatry*, 1964, 5: 314-321.
186. Lewin, L. *Phantastica, narcotic and stimulating drugs*. (1924) London: Routledge & Kegan Paul, 1931.
187. Liebert, R. S., Werner, H., & Wapner, S. Studies in the effect of lysergic acid diethylamide (LSD-25). *Archives of Neurology and Psychiatry*, 1958, 79: 580-584.
188. Linton, H. B., & Langs, R. J. Empirical dimensions of LSD-25 reaction. *Archives of General Psychiatry*, 1964, 10: 469-485.

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189. Linton, H. B., & Langs, R. J. Subjective reactions to lysergic acid diethylamide (LSD-25) measured by a questionnaire. *Archives of General Psychiatry*, 1962, 6: 352-368.
190. Lipton, M. A. The relevance of chemically-induced psychoses to schizophrenia. In D. H. Efron (Ed.), *Psychotomimetic drugs*. New York: Raven, 1970. Pp. 231-240.
191. Liskow, B., LSD and prolonged psychotic reactions. *American Journal of Psychiatry*, 1972, 128: 1154.
192. Long, S. Y. Does LSD induce chromosomal damage and malformations? A review of the literature. *Teratology*, 1972, 6: 75-90.
193. Loughman, W. D., Sargent, T. W., & Israelstam, D. M. Leukocytes of humans exposed to lysergic acid diethylamide: Lack of chromosomal damage. *Science*, 1967, 158: 508-510.
194. Luby, E. D., Cohen, B. D., Rosenbaum, G., Gottlieb, J. S., & Kelley, R. Study of new schizophrenomimetic drug—sernyl. *Archives of Neurology and Psychiatry*, 1959, 81: 363-369.
195. Ludwig, A. M., & Levine, J. The clinical effects of psychedelic agents. *Clinical Medicine*, 1966, 73: 22.
196. Ludwig, A. M., Levine, J., & Stark, L. H. *LSD and alcoholism: A clinical study of treatment efficacy*. Springfield, Ill.: C. C. Thomas, 1970.
197. MacDonald, A. Hallucinogens and other drugs with existing or potential popularity among chronic drug users. Unpublished manuscript, Addiction Research Foundation, Toronto, 1970.
198. Malitz, S. The role of mescaline and d-lysergic acid in psychiatric treatment. *Diseases of the Nervous System*, 1966, 27: 43-47.
199. Malitz, S., Esecover, H., Wilkens, B., & Hoch, P. H. Some observations on psilocybin, a new hallucinogen, in volunteer subjects. *Comprehensive Psychiatry*, 1960, 1: 8-17.
200. Malleson, N. Acute adverse reactions to LSD in clinical and experimental use in the United Kingdom. *British Journal of Psychiatry*, 1971, 118: 229-230.
201. Marshman, J. A., & Gibbins, R. J. A note on the composition of illicit drugs. *Ontario Medical Review*, 1970, 37: 429-430.
202. Masters, R. E. L., & Houston, J. *The varieties of psychedelic experience*. New York: Dell, 1966.
203. McGlothlin, W. H. Policies concerning hallucinogenic drugs. In Hudson Institute, *Policy concerning drug abuse in New York State*. Vol. II. Croton-on-Hudson, N.Y.: Hudson Institute, 1970. Pp. 27-47.
204. McGlothlin, W. H., & Arnold, D. O. LSD revisited: A ten-year follow-up of medical LSD use. *Archives of General Psychiatry*, 1971, 24: 35-49.
205. McGlothlin, W. H., Arnold, D. O., & Freedman, D. X. Organicity measures following repeated LSD ingestion. *Archives of General Psychiatry*, 1969, 21: 704-709.
206. McGlothlin, W. H., Cohen, S., & McGlothlin, M. S. Long lasting effects of LSD on normals. *Archives of General Psychiatry*, 1967, 17: 521-532.
207. McGlothlin, W. H., Jamison, K., & Rosenblatt, S. Marijuana and the use of other drugs. *Nature*, 1970, 228: 1227-1229.
208. McGlothlin, W. H., Sparkes, R. S., & Arnold, D. O. Effect of LSD on human pregnancy. *Journal of the American Medical Association*, 1970, 212: 1483-1487.
209. McGlothlin, W. H., & West, L. J. The marihuana problem: An overview. *American Journal of Psychiatry*, 1968, 125: 126-134.

210. McIsaac, W. M. Exposure of the fetus to marihuana, LSD, and STP. Unpublished manuscript, Texas Research Institute of Mental Sciences, Houston, Texas, 1969.
211. Mercer, G. W. The role of personality in determining reactions to non-narcotic drugs. Unpublished manuscript, Project J-183, Substudy 2-Me-71, Addiction Research Foundation, Toronto, 1971.
212. Meyer, J. S., Greifenstein, F., & Devault, M. A new drug causing symptoms of sensory deprivation. *Journal of Nervous and Mental Diseases*, 1959, 129: 54-61.
213. Meyer, R. E. *Adverse reactions to hallucinogenic drugs*. Washington, D.C.: U.S. Public Health Services Publication No. 1810, 1969.
214. Meyers, F. H., Rose, A. J., & Smith, D. E. Incidents involving the Haight-Ashbury population and some uncommonly used drugs. *Journal of Psychedelic Drugs*, 1968, 1: 139-146.
215. Miller, R. D., Brewster, J., & Leathers, B. Survey of Ottawa area physicians regarding the non-medical use of drugs. Unpublished Commission research project, 1971.
216. Miller, R. D., Hansteen, R. W., Adamec, C., & Lehmann, H. E. A comparison of Δ^9 -tetrahydrocannabinol and marihuana effects in humans. Unpublished Commission research project, 1971. (A preliminary summary appears in Annex A of Chapter 2 of our *Cannabis Report*.)
217. Miller, R. D., & Hemmings, B. Drug induced poisonings and deaths in Canada. Unpublished Commission research project, 1973.
218. Miller, R. D., Ostreicher, P., Marshman, J., Beckstead, H., Paterson, R., Larsson, G., Hemmings, B., Green, M., & Farmilo, C. Chemical analysis of illicit drugs in Canada. Unpublished Commission research project, 1972.
219. Mogar, R. E. Current status and future trends in psychedelic research. *Journal of Humanistic Psychology*, 1965, 4: 147-166.
220. Muller, D. J. ECT in LSD psychosis: A report of three cases. *American Journal of Psychiatry*, 1971, 128: 351-352.
221. Napke, E. (Head, Poison Control and Drug Adverse Reaction Section, Department of National Health and Welfare, Ottawa) Preliminary Poison Control Program. Statistics (1971) communicated to the Commission, 1973.
222. Naranjo, C., Shulgin, A. T., & Sargent, T. Evaluation of 3,4-methylenedioxyamphetamine (MDA) as an adjunct to psychotherapy. *Medicina et Pharmacologia Experimentalis*, 1967, 17: 359-364.
223. Narcotic Addiction Foundation of British Columbia. Brief submitted to the Commission at Vancouver, October 30, 1969.
224. National Organization for the Reform of Marihuana Laws. Statement of R. K. Stroup. Press release, May 17, 1971. (Contains statements by N. Zinberg, L. Wurmser, J. Fort, A. T. Weil, S. Snyder, & L. Grinspoon.)
225. *New York Times*. January 13, 1968: 13, and January 19, 1968: 22.
226. Newfoundland Department of Health and Newfoundland Medical Association. Survey of doctors. Cited in brief submitted to the Commission by the Newfoundland Medical Association at St. John's, Newfoundland, October 24, 1970.
227. Nichols, J. L. Drug use and highway safety: A review of the literature. Unpublished manuscript, U.S. Department of Transportation, National Highway Traffic Safety Administration, Washington, D.C., 1971.
228. Osmond, H. A review of the clinical effects of psychotomimetic agents. *Annals of the New York Academy of Science*, 1957, 66: 418-434.
229. Pahnke, W. N. Drugs and mysticism: An analysis of the relationship between psychedelic drugs and the mystical consciousness. Unpublished doctoral dissertation, Harvard University, 1963.

230. Pahnke, W. N. The mystical and/or religious element in the psychedelic experience. Paper presented to the third annual conference of the R. M. Bucke Memorial Society for the Study of Religious Experience, Oct. 13-15, 1967.
231. Pahnke, W. N. The psychedelic mystical experience in the human encounter with death. *Harvard Theological Review*, 1969, 62: 1-21.
232. Pahnke, W. N., & Richards, W. A. Implications of LSD and experimental mysticism. *Journal of Religion and Health*, 1966, 5: 175-208.
233. Parke-Davis & Co. Bibliography on phencyclidine [1-(1-phenylcyclohexyl) piperidine monochloride]. Unpublished manuscript, Parke-Davis Clinical Development Department, Brockville, Ontario, 1971.
234. Parke-Davis & Co. Medical summary: Sernyl® CI-395. Unpublished manuscript, Parke-Davis Research Laboratories, Brockville, Ontario, 1964.
235. Phillips, G. F., & Mesley, R. J. Examination of the hallucinogen 2,5-dimethoxy-4-methylamphetamine. *Journal of Pharmacy and Pharmacology*, 1969, 21: 9-17.
236. Pollard, J. C., Uhr, L., & Stern, E. *Drugs and phantasy: The effects of LSD, psilocybin, and sernyl on college students*. Boston: Little, Brown, 1965.
237. Reed, A., & Kane, A. STASH notes: Phencyclidine (PCP). *STASH Capsules*, 1970, 2(5): 1-2.
238. Reich, P., & Hepps, R. B. Homicide during a psychosis induced by LSD. *Journal of the American Medical Association*, 1972, 219: 869-871.
239. Reynolds, H. H., & Peterson, G. K. Psychophysiological effects of a large non-experimental dose of LSD-25. *Psychological Reports*, 1966, 19: 287-290.
240. Richards, K. C., & Borgstedt, H. H. Near fatal reaction to ingestion of the hallucinogenic drug MDA. *Journal of the American Medical Association*, 1971, 218: 1826-1827.
241. Richards, L. G., Joffe, M. H., Smith, J. P., & Spratto, G. R. *LSD-25: A factual account*. Washington, D.C.: U.S. Department of Justice, Bureau of Narcotics and Dangerous Drugs, 1969.
242. Richards, R. N. Experience with MDA. *Canadian Medical Association Journal*, 1972, 106: 256-259.
243. Riley, R. E. (Statistics Canada, Health and Welfare Division, Mental Health Section, Ottawa) Unpublished information communicated to the Commission, 1972.
244. Rinkel, M., Atwell, C. R., DiMascio, A., & Brown, J. Psilocybine, a new psychotogenic drug. *New England Journal of Medicine*, 1960, 262: 295-297.
245. Robinson, A. E. Forensic toxicology of psycho-active drugs. *Chemistry in Britain*, 1972, 8: 118-123.
246. Rodin, E., & Luby, E. Effects of LSD-25 on the EEG and photic evoked responses. *Archives of General Psychiatry*, 1966, 14: 435-441.
247. Rosenbaum, G., Cohen, B. D., Luby, E. D., Gottlieb, J. S., & Yelen, D. Comparison of sernyl with other drugs. *Archives of General Psychiatry*, 1959, 1: 651-656.
248. Rosenberg, D. E., Isbell, H., Miner, E. J., & Logan, C. R. The effects of N,N,-dimethyl-tryptamine in human subjects tolerant to lysergic acid diethylamide. *Psychopharmacologia*, 1964, 5: 217-227.
249. Rosenthal, S. H. Persistent hallucinosis following repeated administration of hallucinogenic drugs. *American Journal of Psychiatry*, 1964, 121: 238-244.
250. Roux, C., Dupuis, R., & Aubry, M. LSD: No teratogenic action in rats, mice, and hamsters. *Science*, 1970, 169: 588-589.
251. Royal Canadian Mounted Police. Brief submitted to the Commission at Toronto, October, 1969.

252. Royal Canadian Mounted Police. Brief submitted to the Commission at Ottawa, March, 1970. (With Appendix 2—Effects of drug abuse: Relationship between drug use and criminality).
253. Russell, J. *Survey of drug use in selected British Columbia schools*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
254. Safer, D. J. The effect of LSD on sleep-deprived men. *Psychopharmacologia*, 1970, 17: 414-424.
255. Salvatore, S., & Hyde, R. W. Progression of effects of lysergic acid diethylamide (LSD). *Archives of Neurology and Psychiatry*, 1956, 76: 50-59.
256. Sarwer-Foner, G. J. Some clinical and social aspects of lysergic acid diethylamide. Paper presented at the meeting of the Quebec Psychopharmacological Research Association, L'Annonciation, Quebec, June, 1968.
257. Savage, C., & McCabe, O. L. LSD therapy of narcotic addiction: A controlled study. *Archives of General Psychiatry*, in press, 1972.
258. Savage, C., & Stolaroff, M. J. Clarifying the confusion regarding LSD-25. *Journal of Nervous and Mental Diseases*, 1965, 140: 218-221.
259. Schwarz, C. J. The complications of LSD: A review of the literature. *Journal of Nervous and Mental Diseases*, 1968, 146: 174-186.
260. Schwarz, C. J. Paradoxical responses to chlorpromazine after LSD. *Psychosomatics*, 1967, 8: 210-211.
261. Schultes, R. E. Hallucinogens of plant origin. *Science*, 1969, 163: 245-254.
262. Sharma, A. K., & Sharma, A. Spontaneous and chemically induced chromosome breaks. *International Review of Cytology*, 1960, 10: 101-136.
263. Shulgin, A. J. Chemistry and structure-activity relationships of the psychotomimetics. In D. H. Efron (Ed.), *Psychotomimetic drugs*. New York: Raven, 1970. Pp. 21-38.
264. Shulgin, A. T. Psychotomimetic amphetamines: Methoxy 3,4-dialkoxyamphetamines. *Experientia*, 1964, 20: 366-367.
265. Shulgin, A. T. 3-Methoxy-4,5-methylenedioxy amphetamine, a new psychotomimetic agent. *Nature*, 1964, 201: 1120-1121.
266. Shulgin, A. T., Sargent, T., & Naranjo, C. Structure-activity relationships of one-ring psychotomimetics. *Nature*, 1969, 221: 537-541.
267. Siegel, R. K. Hallucinogens and perceptual changes. *Drug Therapy*, September, 1971: 34-44.
268. Siegel, R. K., Miller, R. D., & Hansteen, R. W. Cannabis induced visual imagery. Unpublished Commission research project, 1971.
269. Slater, P. E., Morimoto, K., & Hyde, R. W. The effect of group administration upon symptom formation under LSD. *Journal of Nervous and Mental Diseases*, 1957, 125: 312-315.
270. Smart, R. G. LSD: Problems and promise. *Canada's Mental Health*, 1968, 16: Suppl. No. 57.
271. Smart, R. G., & Bateman, K. The chromosomal and teratogenic effects of lysergic acid diethylamide: A review of the current literature. *Canadian Medical Association Journal*, 1968, 99: 805-810.
272. Smart, R. G., & Bateman, K. Unfavorable reactions to LSD. *Canadian Medical Association Journal*, 1967, 97: 1214-1221.
273. Smart, R. G., & Fejer, D. Drug use among adolescents and their parents: Closing the generation gap in mood modification. Unpublished manuscript, Project J-183, Substudy 3-7 & Jo-70, Addiction Research Foundation, Toronto, 1970.

274. Smart, R. G., Fejer, D., & White, J. Drug use trends among metropolitan Toronto students: A study of changes from 1968 to 1972. Unpublished manuscript, Project J-183, Substudy 512, Addiction Research Foundation, Toronto, 1972.
275. Smart, R. G., Fejer, D., & White, J. The extent of drug use in metropolitan Toronto schools: A study of changes from 1968 to 1970. *Addictions*, 1971, 18: 1-17.
276. Smart, R. G., Storm, T., Baker, E. F. W., & Solursh, L. *Lysergic acid diethylamide (LSD) in the treatment of alcoholism*. Toronto: University of Toronto Press, 1967.
277. Smith, D. E. The psychotomimetic amphetamines with special reference to STP (D.O.M.) toxicity. *Journal of Psychedelic Drugs*, 1969, 2(2): 73-85.
278. Smith, D. E., & Mehl, C. An analysis of marijuana toxicity. In D. E. Smith (Ed.), *The new social drug: Cultural, medical and legal perspectives on marijuana*. Englewood Cliffs, N.J.: Prentice-Hall, 1970.
279. Smith, H. Do drugs have religious import? In D. Solomon (Ed.), *LSD: The consciousness-expanding drug*. New York: Putnam's, 1964. Pp. 155-169.
280. Smythies, J. R., Johnston, V. S., & Bradley, R. J. Behavioural models of psychosis. *British Journal of Psychiatry*, 1969, 115: 55-68.
281. Snyder, S. H., Faillace, L. A., & Hollister, L. 2,5-dimethoxy-4-methyl-amphetamine (STP): A new hallucinogenic drug. *Science*, 1967, 158: 669-670.
282. Snyder, S. H., Faillace, L. A., & Weingartner, H. DOM (STP), a new hallucinogenic drug, and DOET: Effects in normal subjects. *American Journal of Psychiatry*, 1968, 125: 357-363.
283. Snyder, S. H., Weingartner, H., & Faillace, L. A. DOET (2,5-dimethoxy-4-ethyl-amphetamine) and DOM (STP) (2,5-dimethoxy-4-methylamphetamine), new psychotropic agents: Their effects in man. In D. H. Efron (Ed.), *Psychotomimetic drugs*. New York: Raven, 1970. Pp. 247-263.
284. Solomon, D. *LSD: The consciousness-expanding drug*. New York: Putnam's, 1964.
285. Solursh, L. P. Some medical observations on the use and abuse of illusinogenic drugs. In L. Rutman (Ed.), *Proceedings of University of Winnipeg Conference*. Winnipeg: University of Winnipeg, 1969.
286. Solursh, L. P., & Solursh, M. J. *Illusinogenic drugs: Their effects on criminal responsibility*. Toronto: Canadian Mental Health Association, 1969.
287. Sparkes, R. S., Melnyk, J., & Bozzetti, L. P. Chromosomal effect in vivo of exposure to lysergic acid diethylamide. *Science*, 1968, 160: 1343-1345.
288. Sperling, A. Analysis of hallucinogenic drugs. *Journal of Chromatographic Science*, 1972, 10: 268-274.
289. Stafford, P. G., & Golightly, B. H. *LSD: The problem-solving psychedelic*. New York: Universal, 1967.
290. Stanton, M. D., & Bardoni, A. Drug flashbacks: Reported frequency in a military population. *American Journal of Psychiatry*, 1972, 129: 751-755.
291. Stenchever, M. A., & Jarvis, J. A. Lysergic acid diethylamide (LSD), *American Journal of Obstetrics and Gynecology*, 1970, 106: 485-488.
292. Stone, D., Lamson, E., Chang, Y. S., & Pickering, K. W. Cytogenic effects of cyclamates in human cells in vitro. *Science*, 1969, 164: 568-569.
293. Student Association for the Study of Hallucinogens. STASH fact sheet on DOM ("STP"). *Grassroots*, July, 1972.
294. Sunshine, I. (Ed.) *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
295. Szara, S., Rockland, L. H., Rosenthal, D., & Handlon, J. H. Psychological effects and metabolism of N,N-diethyl-tryptamine in man. *Archives of General Psychiatry*, 1966, 15: 320-329.

296. Tart, C. T. (Ed.) *Altered states of consciousness: A book of readings*. New York: Wiley, 1969.
297. Tart, C. T. Guide to the literature on psychedelic drugs. In his *Altered states of consciousness: A book of readings*. New York: Wiley, 1969.
298. Tart, C. T. *On being stoned: A psychological study of marijuana intoxication*. Palo Alto, Calif.: Science and Behavior Books, 1971.
299. Taylor, G. C. An analysis of the problems presented in the use of LSD. *Bulletin on Narcotics*, 1967, 19: 7-13.
300. Tijo, J. H., Pahnke, W. N., & Kirkland, A. A. LSD and chromosomes. *Journal of the American Medical Association*, 1969, 210: 849-856.
301. Tonini, G., & Montanari, C. Effects of experimentally induced psychoses on artistic expression. *Confinia Neurologica*, 1955, 15: 225-239.
302. Truitt, E. B., Jr., Callaway, E., III, Braude, M. C. & Krantz, J. C., Jr. The pharmacology of myristicin: A contribution to the psychopharmacology of nutmeg. *Journal of Neuropsychiatry*, 1961, 2: 205-210.
303. Truitt, E. B., Duritz, G., & Eersberger, E. M. Evidence of monoamine oxidase inhibition by myristicin and nutmeg. *Proceedings of the Society for Experimental Biology and Medicine*, 1963, 112: 647-650.
304. Unger, S. M. Mescaline, LSD, psilocybin, and personality change. *Psychiatry*, 1963, 26: 111-125.
305. Ungerleider, J. T., & Fisher, D. D. The problems of LSD and emotional disorder. *California Medicine*, 1967, 106: 49-55.
306. Ungerleider, J. T., Fisher, D. D., & Fuller, M. The dangers of LSD: Analysis of seven months' experience in a university hospital's psychiatric service. *Journal of the American Medical Association*, 1966, 197: 389-392.
307. Ungerleider, J. T., Fisher, D. D., Goldsmith, S. R., Fuller, M., & Forgy, E. A statistical survey of adverse reactions to LSD in Los Angeles county. *American Journal of Psychiatry*, 1968, 125: 352-357.
308. United States, President's Commission on Law Enforcement & Administration of Justice. *Task Force report: Narcotics, marijuana and dangerous drugs. Findings and recommendations*. Washington, D.C.: U.S. Government Printing Office, 1969.
309. Unwin, J. R. (Allan Memorial Institute of Psychiatry, Montreal, P.Q.) Personal communication to the Commission, May, 1971.
310. Unwin, J. R. Non-medical use of drugs with particular reference to youth. *Canadian Medical Association Journal*, 1969, 101: 804-820. (Position paper included in Canadian Medical Association brief to the Commission, November 7, 1969.)
311. Uyeno, E. T. Current research in the evaluation of hallucinogens. Paper presented at the Western Psychological Association, Vancouver, June, 1969.
312. Van Vunakis, H., Farrow, J. T., Gjika, H. B., & Levine, L. Specificity of the antibody receptor site to d-lysergamide: Model of a physiological receptor for lysergic acid diethylamide. *Proceedings of the National Academy of Science*, 1971, 68: 1483-1487.
313. Voss, E. W., & Berger, B. B. Neutralization of LSD by active immunization. *Psychopharmacologia*, 1972, 26: 140-145.
314. Wallach, M. B., Friedman, E., & Gershon, S. 2,5-dimethoxy-4-methylamphetamine (DOM), a neuropharmacological examination. *Journal of Pharmacology and Experimental Therapeutics*, 1972, 182: 145-153.
315. Waller, J. A. Drugs and highway crashes: Can we separate fact from fancy. *Journal of the American Medical Association*, 1971, 215: 1477-1482.
316. Walters, P. A., Goethals, G. W., & Pope, H. G. Drug use and life-style among 500 college undergraduates. *Archives of General Psychiatry*, 1972, 26: 92-96.

317. Warkany, J., & Takacs, E. Lysergic acid diethylamide (LSD): No teratogenicity in rats, *Science*, 1968, 159: 731-732.
318. Wasson, R. G. *Soma—Divine mushroom of immortality*. New York: Harcourt, Brace & World, 1968.
319. Weil, A. T. Nutmeg as a psychoactive drug. In D. H. Efron (Ed.), *Ethnopharmacologic search for psychoactive drugs*. Washington, D.C.: U.S. Dept. of Health, Education & Welfare, 1967. Pp. 188-201.
320. Weingartner, H., Snyder, S. H., & Faillace, L. A. DOM (STP), a new hallucinogenic drug: Specific perceptual changes. *Journal of Clinical Pharmacology*, 1971, 11: 103-111.
321. Whitehead, P. C. Head or brain? Drug use and academic performance. Unpublished manuscript, Department of Sociology, Dalhousie University, Halifax, 1969.
322. Wikler, A. *The relation of psychiatry to pharmacology*. Baltimore: Williams & Wilkins, 1957.
323. Wilson, J. G., & Warkany, J. *Teratology: Principles and techniques*. Baltimore: Williams & Wilkins, 1957.
324. Wolbach, A. B., Miner, E. J., & Isbell, H. Comparison of psilocin with psilocybin, mescaline and LSD-25. *Psychopharmacologia*, 1962, 3: 219-223.
325. Wolfe, T. *The electric kool-aid acid test*. New York: Farrar, Straus & Giroux, 1968.
326. Wright, M., & Hogan, T. P. Repeated LSD ingestion of performance on neuropsychological tests. *Journal of Nervous and Mental Diseases*, 1972, 154: 432-438.
327. Zegans, L. S., Pollard, J. C., & Brown, D. The effects of LSD-25 on creativity and tolerance to regression. *Archives of General Psychiatry*, 1967, 16: 740-749.

A.6 ALCOHOL

1. Addiction Research Foundation. *Appendices to the twentieth annual report (1970)*. Toronto: Addiction Research Foundation, 1971.
2. Agnew, N. McK. *An evaluation of the Ontario Addiction Research Foundation proposal for the prevention of alcoholism and related problems*. Toronto: Hickling-Johnston, & The Brewers' Association, 1972.
3. Alha, A. Recent trends in drunken driving in Finland. Paper presented at OECD International Symposium on Countermeasures to Driver Behaviour under the Influence of Alcohol and Other Drugs, London, 22-23 September, 1971.
4. Amir, M. Alcohol and forcible rape. *British Journal of Addiction*, 1967, 62: 219-232.
5. Amit, Z., Stern, M. H., & Wise, R. A. Alcohol preference in the laboratory rat induced by hypothalamic stimulation. *Psychopharmacologia*, 1970, 16: 1-10.
6. Aston, R. Barbiturates, alcohol, and tranquilizers. In S. J. Mulé & H. Brill (Eds.), *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972. Pp. 37-54.
7. Baden, M. M. Alcoholism as related to drug addiction—A medical examiner's view. In W. Keup (Ed.), *Drug abuse: Current concepts in research*. Springfield, Ill.: C. C. Thomas, 1972.
8. Banay, R. S. Alcohol and aggression. In *Alcohol, science and society: Twenty-nine lectures with discussions as given at the Yale Summer School of Alcohol Studies*. New Haven: Quarterly Journal of Studies on Alcohol, 1945. Pp. 143-152.
9. Banay, R. S. Alcoholism and crime. *Quarterly Journal of Studies on Alcohol*, 1942, 2: 686-716.

10. Barr, H. L., Ottenberg, D. J., & Rosen, A. The cross-use of alcohol and drugs by addicts and alcoholics. I. Patterns of previous abuse of alcohol and drugs in a group of hospitalized drug addicts. Paper presented at the International Conference on Alcoholism and Addiction, Dublin, October 5-8, 1971.
11. Bernstein, M. E., Richards, A. B., Hughes, F. W., & Forney, R. B. Optokinetic nystagmus under the influence of d-amphetamine and alcohol. In *Proceedings of the Fourth International Conference on Alcohol and Traffic Safety*, 1966. Pp. 208-210.
12. Bilodeau, L., & Jacob, A. *La prévalence de l'usage des drogues de 1969 à 1971, chez les étudiants du secondaire et du collégial de l'Île de Montréal: Quelques résultats généraux*. Québec: Office de la Prévention et du traitement de l'Alcoolisme et des Autres Toxicomanies, March 5, 1971.
13. Bjerver, K., & Goldberg, L. Effect of alcohol ingestion on driving ability: Results of practical road tests and laboratory experiments. *Quarterly Journal of Studies on Alcohol*, 1950, 11: 1-30.
14. Blum, R. H., & Associates. *Society and drugs*. San Francisco: Jossey-Bass, 1969.
15. Blum, R. H., & Associates. *Students and drugs*. San Francisco: Jossey-Bass, 1969.
16. Blumer, H. ADD Centre project: Final report—The world of youthful drug use. Unpublished manuscript, School of Criminology, University of California, Berkeley, California, 1967.
17. Borkenstein, R. F., Crowther, R. F., Shumate, R. P., Ziel, W. B., & Zylman, R. *The role of the drinking driver in traffic accidents*. Bloomington, Ind.: Department of Police Administration, Indiana University, 1964.
18. Borkenstein, R. F., & Smith, W. H. The breathalyzer and its applications. *Medicine, Science and Law*, 1962, 2: 13-22.
19. Bowden, K. M., Wilson, D. W., & Turner, L. K. A survey of blood alcohol testing in Victoria (1951 to 1956). *Medical Journal of Australia*, 1958, 452: 13-15.
20. Bracken, J. *Report of the Manitoba Liquor Enquiry Commission*. Winnipeg, 1955.
21. Brecher, E. M., & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressions, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
22. Brenner, B. Alcoholism and fatal accidents. *Quarterly Journal of Studies on Alcohol*, 1967, 28: 517-528.
23. Brown, D. J., Hughes, F. W., Forney, R. B., & Richards, A. B. Effects of d-amphetamine and alcohol on attentive motor performance in human subjects. In *Proceedings of the Fourth International Conference on Alcohol and Traffic Safety*, 1966. Pp. 215-219.
24. Brown, S. S., Forrest, J. A. H., & Roscoe, P. A controlled trial of fructose in the treatment of acute alcoholic intoxication. *Lancet*, 1972, 2: 898-899.
25. Buck, L. How does drinking impair driving. *R.C.M.P. Gazette*. October, 1969: 18-22.
26. Campbell, E. O'F. Alcohol involvement in fatal motor vehicle accidents, 1966-1969. *Modern Medicine of Canada*, 1971, 26: 7-10.
27. Campbell, I. L. Non-medical psychoactive drug use at Bishop's University 1965 to 1970. Unpublished manuscript, Sir George Williams University, Montreal, 1970.
28. Canda, Commission of Inquiry Into the Non-Medical Use of Drugs. *Cannabis*. Ottawa: Information Canada, 1972.
29. Canada, Department of National Health and Welfare, Food and Drug Directorate (now Health Protection Branch), Biostatistics Division. Poison control program statistics, Ottawa, 1970.

30. Canada, Department of the Solicitor General of Canada. *Annual report 1971-72*. Ottawa: Information Canada, 1972.
31. Canada, Dominion Bureau of Statistics. *Correctional institution statistics, 1970*. Ottawa: Information Canada, 1971. Pp. 22 & 36.
32. Canada, Dominion Bureau of Statistics, Health and Welfare Division. *Manual for the classification of psychiatric diagnoses*. Ottawa: Queen's Printer, 1969.
33. Canada, Statistics Canada. *Causes of death: Provinces by sex and Canada by sex and age (1971)*. Ottawa: Information Canada, 1972.
34. Canada, Statistics Canada. *Mental health statistics*. Vol. 1. *Institutional admissions and separations (1970)*. Ottawa: Information Canada, 1972.
35. Canadian Press. Quebec's cut-rate booze responsible for a dozen deaths a year. *Ottawa Citizen*, December 18, 1971: 16.
36. Cappell, H., & Herman, C. P. Alcohol and tension reduction: A review. *Quarterly Journal of Studies on Alcohol*, 1972, 33: 33-64.
37. Carpenter, J. A. Effects of alcohol on some psychological processes. *Quarterly Journal of Studies on Alcohol*, 1962, 23: 274-314.
38. Carpenter, J. A. The joint action of alcohol and meprobamate. Unpublished manuscript, Center of Alcohol Studies, Rutgers University, New Brunswick, New Jersey, 1973.
39. Carpenter, J. A., & Varley, M. The joint action of tranquilizers and alcohol on driving. In *Proceedings of the Conference on Alcohol and Road Traffic* (London), 1962. Pp. 156-161.
40. Carson, D. J. L. Pathological findings following alcohol. *Anesthesia and Analgesia*, 1969, 48: 670-675.
41. Cattell, R. B. The three basic factor-analytic research designs—Their interrelations and derivatives. *Psychological Bulletin*, 1952, 49: 499-520.
42. Chafetz, M. E., & Demone, H. W. *Alcoholism and society*. New York: Oxford University Press, 1962.
43. Chapman, L. F. Experimental induction of hangover. *Quarterly Journal of Studies on Alcohol*, 1970, Supplement No. 5: 67-86.
44. Cholet, R., & Barres, G. Effect of ketoglutaric acid salts on alcohol intoxication; experimental study. *Rev. Alesme*, 1970, 16: 117-126.
45. Ciompi, L., & Eisert, M. Mortalité et causes de décès chez les alcooliques. *Social Psychiatry*, 1969, 4: 159-168.
46. Clarke, E. G. C. (Ed.) *Isolation and identification of drugs*. London: Pharmaceutical, 1969.
47. Cohen, J., Dearnalay, E. J., & Hansel, C. E. M. The risk taken in driving under the influence of alcohol. *British Medical Journal*, 1958, 1: 1438-1444.
48. Coldwell, B. B. (Ed.) Report on impaired driving tests. R.C.M. Police Crime Detection Laboratories, Ottawa, 1957.
49. Coldwell, B. B. Some laboratory investigations. *R.C.M.P. Quarterly*, 1965, 31: 21-26.
50. Coldwell, B. B., Trenholm, H. L., Thomas, B. H., Wiberg, G. S., & Iverson, F. Metabolic and pharmacokinetic studies on the interactions of ethanol and barbiturates. *Clinical Toxicology*, 1972, 5: 34.
51. Conger, J. J. Reinforcement theory and the dynamics of alcoholism. *Quarterly Journal of Studies on Alcohol*, 1956, 17: 296-305.
52. Cotnam, H. B. Drug deaths in Ontario—1970. Paper presented at the Continuing Educational Course for Coroners, Toronto, November 5, 1971.

53. Couse, A. K. Excessive drinking and criminal behaviour. Unpublished Master's thesis, University of Toronto, 1960.
54. Dahlgren, K. G. On death rates and causes of death in alcohol studies. *Acta Psychiatrica Scandinavica*, 1951, 26: 297-311.
55. Daramola, T., & Grange, J. J. The cannabis problem among prisoners in Lagos. *Bulletin on Narcotics*, 1971, 23: 5-10.
56. Devenyi, P., & Wilson, M. Abuse of barbiturates in an alcoholic population. *Canadian Medical Association Journal*, 1971, 104: 219-221.
57. Devenyi, P., & Wilson, M. Parbiturate abuse and addiction and their relationship to alcohol and alcoholism. *Canadian Medical Association Journal*, 1971, 104: 215-218.
58. Drew, G. C., Colquhoun, W. P., & Long, H. D. Effect of small doses of alcohol on a skill resembling driving. *British Medical Journal*, 1958, 2: 993-999.
59. Dundee, J. W., & Isaac, M. Interaction between intravenous alcohol and some sedatives and tranquilizers. *Medicine, Science and Law*, 1971, 11: 49-50.
60. Dundee, J. W., Isaac, M., Pandit, S. K., & McDowell, S. A. Clinical studies of induction agents. XXXIV: Further investigations with ethanol. *British Journal of Anesthesia*, 1970, 42: 300-310.
61. Eddy, N. B., Halbach, H., Isbell, H., & Seevers, M. H. Drug dependence: Its significance and characteristics. *Bulletin of the World Health Organization*, 1965, 32: 721-733.
62. Eerola, R. The effect of ethanol on the toxicity of hexobarbital, thiopental, morphine, atropine and scopolamine: An experimental study on mice. *Annales Medicinæ Experimentalis et Biologiæ Fenniae*, 1961, 39: 1-70.
63. Eerola, R., Venho, I., Vartiainen, O., & Benho, E. V. Acute alcohol poisoning and morphine: An experimental study of the synergism of morphine and ethyl alcohol in mice. *Annales Medicinæ Experimentalis et Biologiæ Fenniae*, 1955, 33: 253-261.
64. Ewing, J. A. Some effects of beverage alcohol on sleep. Paper presented at joint meeting of the Canadian and Quebec Psychiatric Associations and the Royal College of Psychiatry, Montreal, June 8-10, 1972.
65. Fabre, L. F., Farmer, R. W., Pellizzari, E. D., & Farrell, G. Aldosterone secretion in pentobarbital-anesthetized ethanol-infused dogs. (Prepublication abstract) Texas Research Institute of Mental Sciences, Houston, Texas, n.d.
66. Fenna, D., Mix, L., Schaefer, O., & Gilbert, J. A. L. Ethanol metabolism in various racial groups. *Canadian Medical Association Journal* 1971, 105: 472-475.
67. Ferguson, J. K. W. A new drug for alcoholism treatment. *Canadian Medical Association Journal*, 1956, 74: 795-796.
68. Ferguson, R. K., & Vernon, R. J. Trichloroethylene in combination with CNS drugs. *Archives of Environmental Health*, 1970, 20: 462-467.
69. Fernandes, M., & Coper, H. The role of vehicles in cannabis application and interaction between cannabis and central active drugs. (Abstract) *Acta Pharmaceutica Suecica*, 1971, 8: 692-693.
70. Ferrans, V. J. Alcoholic cardiomyopathy. *American Journal of the Medical Sciences*, 1966, 252: 89-104.
71. Fisher, R. S., Walker, J. T., & Plummer, C. W. Quantitative estimation of barbiturates in blood by ultraviolet spectrophotometry. II. Experimental and clinical results. *American Journal of Clinical Pathology*, 1948, 18: 462-469.
72. Flynn, J. T. Sober reflections on imprisonment of alcoholics. *Journal of the American Medical Association*, 1966, 198: 563-564.
73. Forney, R. B. Toxicology of marihuana. Unpublished manuscript, Indiana University School of Medicine, Indianapolis, Indiana, 1971.

74. Forney, R. B., & Harger, R. N. The alcohols. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) New York: McGraw-Hill, 1965. Pp. 210-231.
75. Forney, R. B., & Hughes, F. W. Alcohol and drugs. *Traffic safety*, 1967, 67(6): 22-36.
76. Forney, R. B., & Hughes, F. W. *Combined effects of alcohol and other drugs*. Springfield, Ill.: C. C. Thomas, 1968.
77. Forney, R. B., & Hughes, F. W. Effect of caffeine and alcohol on performance under stress of audiofeedback. *Quarterly Journal of Studies on Alcohol*, 1965, 26: 206-212.
78. Forney, R. B., & Hughes, F. W. Interaction between alcohol and psycho-pharmacological drugs. In C. Radouco-Thomas (Ed.), *International encyclopedia of pharmacology and therapeutics*. Section 20. *Alcohols and derivatives*. Vol. II. Oxford: Pergamon, 1970. Pp. 445-461.
79. Forney, R. B., & Hughes, F. W. Meprobamate, ethanol or meprobamate-ethanol combinations on performance of human subjects under delayed audiofeedback (DAF). *Journal of Psychology*, 1964, 57: 431-436.
80. Forrest, F.-M., & Forrest, I.-S. Alcohol-chlorpromazine interactions in psychiatric patients. *Agressologie*, 1972, 13: 63-67.
81. Franks, C. M. Alcohol, alcoholism and conditioning: A review of the literature and some theoretical considerations. *Journal of Mental Science*, 1958, 104: 14-33.
82. Ganong, W. F. *Review of medical physiology*. (2nd ed.) Los Altos, Calif.: Lange Medical, 1965. P. 244.
83. Gearing, F. R. Methadone maintenance: Six years later. *Contemporary Drug Problems; A Law Quarterly*, Spring, 1972: 191-206.
84. Gibbins, R. J. *Chronic alcoholism*. Toronto: University of Toronto Press, 1953.
85. Gibbins, R. J. (Addiction Research Foundation, Toronto) Personal communication to the Commission, 1973.
86. Giffen, P. J., Oki, G., & Lambert, S. The chronic drunkenness offender: Ages and causes of death of the chronic drunkenness offender population. Unpublished manuscript, Project 52, Substudy 1-11 & 16 & 24 & T & Max-71, Addiction Research Foundation, Toronto, 1971.
87. Globe and Mail. Police charge three over methyl alcohol. *Globe and Mail* (Toronto), April 27, 1971.
88. Goldberg, L. Alcohol, tranquilizers and hangovers. *Quarterly Journal of Studies on Alcohol*, 1961, Supplement No. 1: 37-56.
89. Goldberg, L. The definition of an intoxicating beverage. *Quarterly Journal of Studies on Alcohol*, 1955, 16: 316.
90. Goldberg, L. Drunken drivers in Sweden. In *Proceedings of the Second International Conference on Alcohol and Road Traffic* (Toronto), 1955. Pp. 112-127.
91. Goldberg, L. Quantitative studies of alcohol tolerance in man. *Acta Physiologica Scandinavica*, 1943, 5: 1-128.
92. Gray, J. H. *Booze*. Toronto: Macmillan, 1972.
93. Green, M., & Blackwell, J. C. Final monitoring project. Unpublished Commission research project, 1972.
94. Green, M., & Leathers, B. Adult drug users study. Unpublished Commission research project, 1971.
95. Green, M., Hemmings, B., Miller, R. D., & Hansteen, R. W. Self reporting of drug consumption patterns by regular cannabis users: The logbook study. Unpublished Commission research project, 1971.
96. Greenberg, L. Easing "hangover" discomfort. *Canadian Medical Association Journal*, 1969, 100: 22.

97. Greizerstein, H. B., & Smith, C. M. Progress summary on alcohol-THC interactions in mice. Unpublished manuscript, Research Institute on Alcoholism, Albany, N.Y., June, 1971.
98. Gross, M. M., Rosenblatt, S. M., Lewis, E., Chartoff, S., & Malenowski, B. Acute alcoholic psychoses and related syndromes: Psychosocial and clinical characteristics and their implications. *British Journal of Addiction*, 1972, 67: 15-31.
99. Haagen, C. H. *Social and psychological characteristics associated with the use of marijuana by college men*. Middletown, Conn.: Wesleyan University Press, 1970.
100. Haberman, P. W., & Baden, M. M. Alcoholism and violent death. Unpublished manuscript, Columbia University School of Public Health, New York, 1972.
101. Haines, L., & Green, W. Marijuana use patterns. *British Journal of Addiction*. 1970, 65: 347-362.
102. Hald, J. Jacobsen, E., & Larsen, V. The sensitizing effect of tetraethyluram-disulphide (Antabuse) to ethyl alcohol. *Acta Pharmacologica et Toxicologica*, 1948, 4: 258-296.
103. Hammersley, T. W. Conditioned-reflex treatment. In R. S. Wallerstein (Ed.), *Hospital treatment of alcoholism*. New York: Basic, 1957.
104. Han, Y. H. Why do chronic alcoholics require more anesthesia. *Anesthesiology*, 1969, 30: 341-342.
105. Hansteen, R. W., Lonero, L., Miller, R. D., & Jones, B. The effects of cannabis and alcohol on some automobile driving tasks. Unpublished Commission research project, 1971.
106. Harger, R. N., & Forney, R. B. Aliphatic alcohol. In A. Stolman, *Progress in chemical toxicology*. New York: Academic, 1967.
107. Harper, C. R., & Albers, W. R. Alcohol and general aviation accidents. *Aerospace Medicine*, 1964, 35: 462-464.
108. Hayman, M. The myth of social drinking. *American Journal of Psychiatry*, 1967, 124: 39-48.
109. Hemmings, B., & Miller, R. D. A survey of provincial coroners regarding drug-related deaths in Canada. Unpublished Commission research project, 1971-72.
110. Hemmings, B., & Miller, R. D. Non-medical drug use as a factor in hospitalization: A survey of Canadian psychiatric hospital records. Unpublished Commission research project, 1971.
111. Henderson, J. (Chief, Laboratory Division, Department of National Revenue, Customs and Excise, Ottawa) Letter to the Commission, June 17, 1971.
112. Hines, J. D., & Cowan, D. H. Studies on the pathogenesis of alcohol-induced sideroblastic bone-marrow abnormalities. *New England Journal of Medicine*, 1970, 283: 441-446.
113. Holcomb, R. L. Alcohol in relation to traffic accidents. *Journal of the American Medical Association*, 1938, 111: 1076-1085.
114. Hug, C. C. Characteristics and theories related to acute and chronic tolerance development. In S. J. Mulé & H. Brill (Eds.), *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972. Pp. 307-358.
115. Hughes, E. D. What doctors should know about moonshine. *Resident Physician*, November, 1967: 78-86.
116. Hughes, F. K. Drugs and drug-related non-drug crime. Unpublished Commission research paper, 1971.
117. Hughes, F. W., & Forney, R. B. Comparative effect of three antihistaminics and ethanol on mental and motor performance. *Clinical Pharmacology and Therapeutics*, 1964, 5: 414-421.

118. Hughes, F. W., & Forney, R. B. Delayed audiofeedback (DAF) for induction of anxiety. Effect of nortriptyline, ethanol or nortriptyline—ethanol combinations on performance with DAF. *Journal of the American Medical Association*, 1963, 185: 556-558.
119. Hurst, P. M. Estimating the effectiveness of blood alcohol limits. *Behavioral Research in Highway Safety*, 1970, 1: 87-99.
120. Hussian, M. Z., & Marinath, M. Helping alcoholics abstain: An implantable substance. *American Journal of Psychiatry*, 1972, 129: 363.
121. Isbell, H., Fraser, H. F., Wikler, A., Belleville, R. E., & Eisenman, A. J. An experimental study of the etiology of "rum fits" and delirium tremens. *Quarterly Journal of Studies on Alcohol*, 1955, 16: 1-33.
122. Iseri, O. A., & Gottlieb, L. S. Alcoholic hyalin and megamitochondria as separate and distinct entities in liver disease associated with alcoholism. *Gastroenterology*, 1971, 60: 1027-1035.
123. Israel, Y., & Mardones, J. *Biological basis of alcoholism*. New York: Wiley-Interscience, 1971.
124. Jackson, R. J., & Murphree, H. B. Effects of cigarette smoking on motor and perceptual responses in alcohol-intoxicated men. Unpublished manuscript, Rutgers University Centre of Alcohol Studies, New Brunswick, N.J., 1972.
125. Jaffe, J. H. Drug addiction and drug abuse. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (3rd ed.) New York: Macmillan, 1965.
126. Jain, N. C., & Cravey, R. H. Analysis of alcohol: I. A review of chemical and infrared methods. *Journal of Chromatographic Science*, 1972, 10: 257-262.
127. Jain, N. C., & Cravey, R. H. Analysis of alcohol: II. A review of gas chromatographic methods. *Journal of Chromatographic Science*, 1972, 10: 263-267.
128. Jeejeebhoy, K. N., Phillips, M. J., Bruce-Robertson, A., Ho, J., & Sodtke, U. The acute effect of ethanol on albumin, fibrinogen and transferrin synthesis in the rat. *Biochemical Journal*, 1972, 126: 1111-1126.
129. Jellinek, E. M. Alcoholism, a genus and some of its species. *Canadian Medical Association Journal*, 1960, 83: 1341-1345.
130. Jellinek, E. M. *The disease concept of alcoholism*. New Haven: Hillhouse, 1960.
131. Jellinek, E. M. The symbolism of drinking: A culture-historical approach. Unpublished manuscript, Project 117, Substudy 3-2 & 4-65, Addiction Research Foundation, Toronto, n.d.
132. Jellinek, E. M., & McFarland, R. A. Analysis of psychological experiments on the effects of alcohol. *Quarterly Journal of Studies on Alcohol*, 1940, 1: 272-371.
133. Jetter, W. W., & McLean, R. Poisoning by the synergistic effect of phenobarbital and ethyl alcohol. *Archives of Pathology*, 1943, 36: 112-122.
134. Johnson, F. G., Ferrance, R., & Whitehead, P. Self injury among patients: Possibilities for identification and intervention. *Canadian Psychiatric Association Journal*, 1973, 18: 101-106.
135. Jones, R. T., & Stone, G. C. Psychological studies of marijuana and alcohol in man. *Psychopharmacologia*, 1970, 18: 108-117.
136. Kalant, H. Effects of ethanol on the nervous system. In C. Radouco-Thomas (Ed.), *International encyclopedia of pharmacology and therapeutics*. Section 20. *Alcohols and derivatives*. Vol. 1. Oxford: Pergamon, 1970. Pp. 189-236.
137. Kalant, H. Interpretation of post-mortem ethanol concentrations. *Aerospace Medicine*, 1968, 39: 633-637.
138. Kalant, H., & Kalant, O. J. *Drugs, society and personal choice*. Toronto: General Publishing, 1971.
139. Kalant, H., LeBlanc, A. E., & Gibbins, R. J. Tolerance to, and dependence on, some non-opiate psychotropic drugs. *Pharmacological Reviews*, 1971, 23: 135-191.

140. Kaplan, H. L., Forney, R. B., Hughes, F. W., Jain, N. C., & Crim, D. Chloral hydrate and alcohol metabolism in human subjects. *Journal of Forensic Sciences*, 1967, 12: 295-303.
141. Kaplan, H. L., Forney, R. B., Richards, A. B., & Hughes, F. W. Dextro-amphetamine, alcohol and dextro-amphetamine-alcohol combination and mental performance. In *Proceedings of the Fourth International Conference on Alcohol and Traffic Safety*, 1966. Pp. 211-214.
142. Kelly, M., Myrsten, A.-L., & Goldberg, L. Intravenous vitamins in acute alcoholic intoxication: Effects on physiological and psychological functions. *British Journal of Addiction*, 1971, 66: 19-30.
143. Kessel, N., & Grossman, G. Suicide in alcoholics. *British Medical Journal*, 1961, 2: 1671-1672.
144. Kessel, N., & Walton, H. *Alcoholism*. Baltimore, Md.: Penguin, 1965.
145. Kibrick, E., & Smart, R. G. Psychotropic drug use and driving risk: A review and analysis. *Journal of Safety Research*, 1970, 2: 73-85.
146. Kinghan, R. J. Alcoholism and the reinforcement theory of learning. *Quarterly Journal of Studies on Alcohol*, 1958, 19: 320-330.
147. Klatskin, G. Alcohol and its relation to liver damage. *Gastroenterology*, 1961, 41: 443-451.
148. Kuller, L., Lilienfeld, A., & Fisher, R. Sudden and unexpected deaths in young adults: An epidemiological study. *Journal of the American Medical Association*, 1966, 198: 248-252.
149. Landauer, A. A., Milner, G., & Patman, J. Alcohol and amitriptyline effects on skills related to driving behavior. *Science*, 1969, 163: 1467-1468.
150. Lanphier, C. M., & Phillips, S. B. (a) The non-medical use of drugs and associated studies: A national household survey. (b) Secondary school students and non-medical drug use: A national survey of students enrolled in grades seven through thirteen. (c) University students and non-medical drug use: A national survey. Unpublished Commission research project, 1971.
151. Latchford, M. A., & McDonald, L. Comparative international study of alcoholism. Unpublished Commission research paper, 1971.
152. Laverty, S. G. Aversion therapies in the treatment of alcoholism. *Psychosomatic Medicine*, 1966, 28: 651-666.
153. Lawton, N. P., & Cahn, B. The effects of diazepam (Valium) and alcohol on psychomotor performance. *Journal of Nervous and Mental Diseases*, 1963, 136: 550-554.
154. LeBlanc, E. Behavioural and pharmacological variables in the development of ethanol tolerance. Unpublished doctoral dissertation, University of Toronto, 1972.
155. Ledermann, S. *Alcool—Alcoolisme—Alcoolisation*. Paris: Presses Universitaires de France, 1956.
156. Leevy, C. M., Valdellon, E., & Smith, F. Nutritional factors in alcoholism and its complications. In Y. Israel (Ed.), *Biological basis of alcoholism*. New York: Wiley-Interscience, 1971.
157. Lewis, E. M., & Sarlanis, K. *The effects of alcohol on decision-making with respect to traffic signals*. Washington, D.C.: U.S. Department of Health, Education and Welfare, 1969.
158. Lewis, E. M., & Sarlanis, K. *The effects of varying levels of alcohol on dark adaptation time*. Washington, D.C.: U.S. Department of Health, Education and Welfare, 1970.
159. Lidholm, S. O., Lindberg, J., & Orrenius, S. Konsekutiv serie drunknings-fall under ett år; alkoholphaverkan i halften av olycksfallen. [Consecutive series of drownings during a year; half of the casualties under the influence of alcohol.] *Läkartidningen*, 1970, 67: 3093-3104.

160. Lieber, C. S., Jones, D. P., & DeCarli, L. M. Effects of prolonged ethanol intake: Production of fatty liver despite adequate diets. *Journal of Clinical Investigation*, 1965, 44: 1009-1021.
161. Lieber, C. S., Lefèvre, A., Spritz, N., Feinman, L. & DeCarli, L. M. Difference in hepatic metabolism of long- and medium-chain fatty acids: The role of fatty acid chain length in the production of the alcoholic fatty liver. *Journal of Clinical Investigation*, 1967, 46: 1451-1460.
162. Light, W. O., & Keiper, C. G. *Effects of moderate blood alcohol levels on automobile passing behaviour*. ICRL-RR-69-4. Washington, D.C.: U.S. Department of Health, Education and Welfare, 1971.
163. Lipscomb, W. R. Mortality among treated alcoholics: A three year follow-up study. *Quarterly Journal of Studies on Alcohol*, 1959, 20: 596-603.
164. Loomis, T. A., & West, T. C. The influence of alcohol on automobile driving ability: An experimental study for the evaluation of certain medicological aspects. *Quarterly Journal of Studies on Alcohol*, 1958, 19: 30-46.
165. Lovell, W. S. Breath tests for determining alcohol in the blood. *Science*, 1972, 178: 264-272.
166. Lucas, G. H. W., Kalow, W., McColl, J. D., Griffith, B. A., & Smith, H. W. *Quantitative studies of the relationship between alcohol levels and motor vehicles accidents*. In Proceedings of the Second International Conference on Alcohol and Road Traffic. Toronto: Brewer's Warehousing, 1955. Pp. 139-142.
167. Lynch, P. G. Alcoholic myopathy. *Journal of the Neurological Sciences*, 1969, 9: 449-462.
168. MacKay, J. R., Phillips, D. L., & Bryce, F. O. Drinking behaviour among teenagers: A comparison of institutionalized and non-institutionalized youth. *Journal of Health and Social Behaviour*, 1967, 8: 46-54.
169. Maling, H. M. Toxicology of single doses of ethyl alcohol. In C. Radouco-Thomas (Ed.), *International encyclopedia of pharmacology and therapeutics*. Section 20. *Alcohols and derivatives*. Vol. II. Oxford: Pergamon, 1970. Pp. 277-300.
170. Manheimer, D. I., Mellinger, G. D., & Balter, M. B. Marijuana use among urban adults. *Science*, 1969, 166: 1544-1545.
171. Manno, J. E. Clinical investigations with marijuana and alcohol. Unpublished doctoral dissertation, Department of Pharmacology and Toxicology, Indiana University, Bloomington, Indiana, 1970.
172. Manno, J. E., Kiplinger, G. F., Haine, S. E., Bennett, I. F., & Forney, R. B. Comparative effects of smoking marihuana or placebo on human motor and mental performance. *Clinical Pharmacology and Therapeutics*, 1970, 11: 808-815.
173. Manno, J. E., Kiplinger, G. F., Scholz, N., & Forney, R. B. The influence of alcohol and marihuana on motor and mental performance. *Clinical Pharmacology and Therapeutics*, 1971, 12: 202-211.
174. Marfaing-Jallet, P., Larue, C., & LeMagen, J. Alcohol intake in hypothalamic hyperphagic rats. *Physiological Behavior*, 1970, 5: 345.
175. Marvin, T. R. Acute alcoholic withdrawal syndrome. *Minnesota Medicine*, 1970, 53: 999-1003.
176. Masserman, J. H., & Yum, K. S. An analysis of the influence of alcohol on experimental neurosis in cats. *Psychosomatic Medicine*, 1946, 8: 36-52.
177. McCarroll, J. R., & Haddon, W., Jr. A controlled study of fatal automobile accidents in New York City. *Journal of Chronic Diseases*, 1961, 15: 811-826.
178. McClelland, D. C., Davis, W. N., Kalin, R., & Wanner, E. *The drinking man: Alcohol and human motivation*. New York: Free Press, 1972.
179. McGlothlin, W. H., Arnold, D. O., & Rowan, P. K. Marijuana use among adults. *Psychiatry*, 1970, 33: 433-443.

180. Mendelson, J. H. Experimentally induced chronic intoxication and withdrawal in alcoholics. *Quarterly Journal of Studies on Alcohol*, 1964, Supplement No. 2: 1-126.
181. Mendelson, J. H., Rossi, A. M., & Bernstein, J. Effects of propranolol on behavior of alcoholics following acute alcohol intake. Paper presented at the Fifth International Congress on Pharmacology, San Francisco, California, July, 1972.
182. Menge, W. O. Mortality experience among cases involving alcoholic habits. *Proceedings of the Home Office Life Underwriters Association*, 1965, 46: 70-94.
183. Merland, A., Fiorentini, H., & Orsini, J. A propos de 34 expertises psychiatriques se rapportant à des actes d'inceste père-fille. *Annales de Médecine Légale*, 1962, 42: 353-359.
184. Mezey, E., Jow, E., Slavin, R. E., & Tobon, F. Pancreatic function and intestinal absorption in chronic alcoholism. *Gastroenterology*, 1970, 59: 657-663.
185. Miller, A. I., D'Agonstino, A., & Mirsky, R. Effects of combined chlordiazepoxide and alcohol in man. *Quarterly Journal of Studies on Alcohol*, 1963, 24: 9-13.
186. Miller, M. M. Amphetamine sulphate in aborting the acute alcoholic cycle. *American Journal of Psychiatry*, 1944, 100: 800-802.
187. Miller, R. D. Some principles of psychopharmacology: Implications for the social control of drug abuse. Paper presented at the Sir George Williams University Symposium on Drug Abuse, Montreal, February, 1969.
188. Miller, R. D., Hansteen, R. W., Adamec, C., & Lehmann, H. E. A comparison of Δ^9 -tetrahydrocannabinol and marijuana effects in humans. Unpublished Commission research project, 1971.
189. Miller, R. D., Hansteen, R. W., Lehmann, H. E., Reid, L., Lonero, L., Adamec, C., Theodore L., & Jones, B. The Commission's experimental studies of acute effects of marijuana Δ^9 THC and alcohol in humans. Paper presented at the Meeting of the International College of Neuro-Psychopharmacology in Copenhagen, August 13-17, 1972. In press, *Proceedings of the 8th Symposium of the Collegium Internationale Neuro-Pharmacologicum*. Avicenum, Czechoslovak Medical Press, 1973.
190. Miller, R. D., & Hemmings, B. Drug induced poisoning and death in Canada. Unpublished Commission research project, 1973.
191. Milner, G., & Laudauer, A. A. Alcohol, thioridazine and chlorpromazine effects on skills related to driving behaviour. *British Journal of Psychiatry*, 1971, 118: 351-352.
192. Misra, P. S., Lefèvre, A., Ishii, H., Rubin, E., & Lieber, C. S. Increase of ethanol, meprobamate and pentobarbital metabolism after chronic ethanol administration in man and in rats. *American Journal of Medicine*, 1971, 51: 346-351.
193. Morin, Y. Quebec beer drinkers' cardiomyopathy: Hemodynamic alterations. *Canadian Medical Association Journal*, 1967, 97: 901-916.
194. Moskow, H. A. Pennington, R. C., & Knisley, M. H. Alcohol, sludge, and hypoxic areas of nervous system, liver and heart. *Microvascular Research*, 1968, 1: 174-185.
195. Moskowitz, H. The effect of alcohol upon information-processing in the driving situation. Paper presented at OECD International Symposium on Countermeasures to Driver Behaviour under the Influence of Alcohol and Other Drugs, September 22-23, London, 1971.
196. Moskowitz, H. The effects of alcohol on performance in a driving simulator of alcoholics and social drinkers. Unpublished manuscript, Institute of Transportation and Traffic Engineering, School of Engineering and Applied Science, University of California, Los Angeles, California, 1971.
197. Moskowitz, H., & Sharma, S. Alcohol division of attention and tunnel vision. *Human Factors*, 1972. (in press)

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198. Moskowitz, H., Sharma, S., & Schapero, M. A comparison of the effects of marihuana and alcohol on visual functions. Paper presented at the Symposium on Aeromedical Aspects of Marihuana, Civil Aeromedical Institute, Oklahoma City, June 13-15, 1972.
199. Muller, B. P., Tarpey, R. D., Giorgi, A. P., Mirone, L., & Rouke, T. L. Effects of alcohol and mephenoqualone on psychophysiological test performance. *Diseases of the Nervous System*, 1964, 25: 373-375.
200. Mulvihill, D. J., & Tumin, M. M. *Crimes of violence: A staff report submitted to the National Commission on the Causes and Prevention of Violence*. Vol. 12. Washington, D.C.: U.S. Government Printing Office, 1969.
201. Murata, Z. [A biological study of alcoholic criminals.] (Abstract) *Zentralblatt für Gesamte Neurologie und Psychiatrie* 1961, 160: 198.
202. Murphree, H. B. The importance of congeners in the effects of alcoholic beverages. In Y. Israel & J. Mardones (Eds.), *Biological basis of alcoholism*. New York: Wiley-Interscience, 1971. Pp. 209-234.
203. Naalsund, O. Influence of alcohol as contraindication against morphine. *Journal of the American Medical Association*, 1955, 159: 727.
204. Napke, E. (Head, Poison Control and Drug Adverse Reaction Section, Department of National Health and Welfare, Ottawa) Preliminary Poison Control Program Statistics (1971) communicated to the Commission, 1973.
205. Newby, R. F. Casualty reductions in Great Britain following the Road Safety Act, 1967. Paper presented at the OECD Symposium on Countermeasures to Driver Behaviour under the Influence of Alcohol and Other Drugs, September 22-23, London, 1971.
206. Newman, H. W. Alcohol injected intravenously. Some psychological and psychopathological effects in man. *American Journal of Psychiatry*, 1935, 91: 1343-1352.
207. New York Times. Marijuana turns youth away from beer. *New York Times*, 1970, 47: 1.
208. Nichols, J. L. Drug use and highway safety: A review of the literature. Report DOT-HS-012-1-019. Unpublished manuscript, U.S. Department of Transportation, National Highway Traffic Safety Administration, Washington, D.C., July, 1971.
209. Norvig, J., & Nielson, B. A follow-up study of 221 alcohol addicts in Denmark. *Quarterly Journal of Studies on Alcohol*, 1956, 17: 633-642.
210. Observer [pseud.], & Maxwell, M. A. A study of absenteeism, accidents and sickness payments in problem drinkers in one industry. *Quarterly Journal of Studies on Alcohol*, 1959, 20: 302-312.
211. O'Day, J. Drinking involvement in 1968 Michigan fatal accidents. *HIT Lab report*, University of Michigan Highway Safety Research Institute, November, 1970. Pp. 7-10.
212. Oki, G. Blood alcohol and public drunkenness. Unpublished manuscript, Project D-177, Substudy 3-16-71, Addiction Research Foundation, Toronto, 1971.
213. Patman, J., Landauer, A. A., & Milner, G. The combined effect of alcohol and amitriptyline on skills similar to motor-car driving. *Medical Journal of Australia*, 1969, 2: 946-949.
214. Paulus, I. Psychedelic drug use on the Canadian Pacific coast: Notes on the new drug scene. *International Journal of the Addictions*, 1969, 4: 77-88.
215. Pawan, G. L. S. (Senior Lecturer in Metabolism, Middlesex Hospital, London) Letter to the Commission, July 18, 1972.
216. Peart, A. F. W. The effect of alcohol on driving in Canada. In *IVth International Congress of Accidents and Traffic Medicine: Book of Abstracts*. Paris, 1972. Pp. 91-92.

217. Pequinot, G. Investigation on dietetic conditions of alcoholical cirrhosis in France. *Bulletin de l'Institut National d'Hygiène*, 1958, 13.
218. Phillips, G. B., & Davidson, C. S. Acute hepatic insufficiency of the chronic alcoholic: Clinical and pathological study. *Archives of Internal Medicine*, 1954, 94: 585-603.
219. Pincock, T. A. The frequency of alcoholism among self-referred persons and those referred by the courts for psychiatric examination. *Canadian Medical Association Journal*, 1962, 87: 282-286.
220. Pionkowski, J. Wpływ alkoholizmu na przestępczość osób wykazujących zaburzenia psychiczne. [Influence of alcoholism on the delinquency of subjects with mental disorders.] *Neurologia, Neurochirurgia i Psychiatria Polska*, 1965, 15: 875-879.
221. Polascek, E., Barnes, T., Turner, N., Hall, R., & Weise, C. (Eds.) *Interaction of alcohol and other drugs: An annotated bibliography*. (2nd rev. ed.) Toronto: Addiction Research Foundation, 1972.
222. Popham, R. E. (Ed.) *Alcohol and alcoholism*. Toronto: University of Toronto Press, 1970.
223. Popham, R. E., & Schmidt, W. *A decade of alcoholism research*. Toronto: University of Toronto Press, 1962.
224. Popham, R. E., & Schmidt, W. *Statistics of alcohol use and alcoholism in Canada 1871-1956*. Toronto: University of Toronto Press, 1958.
225. Popham, R. E., Schmidt, W., & de Lint, J. The prevention of alcoholism: Epidemiological studies of the effects of government control measures. Unpublished manuscript, Project J-100, Substudy 2-2 & 4 & 10-71, Addiction Research Foundation, Toronto, 1971.
226. Powell, B. J., Goodwin, D. W., Jones, C. L., & Hoine, H. State-dependent effects of alcohol on autonomic orienting responses. *Psychonomic Science*, 1971, 25: 305-306.
227. Quarterly Journal of Inebriety. Editorial. *Quarterly Journal of Inebriety*, 1904, 26: 308-309. Cited by U.S. Department of Transportation, 1968 *alcohol and highway safety report*. Washington, D.C.: U.S. Government Printing Office, 1968. P. 128.
228. Ramée, F., & Michaux, P. De quelques aspects de la délinquance sexuelle dans un département de l'ouest de la France. *Acta Medicinæ, Legalis et Socialis*, 1966, 19: 79-85.
229. Rankin, D. B. (Statistics Canada, Transportation and Public Utilities Division, Ottawa) Preliminary information communicated to the Commission, 1973.
230. Rankin, J. G., Schmidt, W., & Popham, R. E. Epidemiology of alcoholic liver disease—Insights and problems. Paper presented at the Joint Royal College of Physicians and Surgeons of Canada—Canadian Society for Clinical Investigation Symposium, "The Alcoholic and Liver Disease", January, 1972.
231. Reed, T. E., Kalant, H., & Gibbins, R. J. Ethnic and sex differences in responses to alcohol. Unpublished manuscript, Addiction Research Foundation, Toronto, 1973.
232. Regan, T. J. Ethyl alcohol and the heart. *Circulation*, 1971, 44: 957-963.
233. Reid, L. D., Hansteen, R. W., & Miller, R. D. The effects of cannabis and alcohol on psychomotor tracking performance. Unpublished Commission research project, 1971. (A preliminary summary appears in Annex A of Chapter 2 of this Commission's *Cannabis Report*.)
234. Reid, L. D., Ibrahim, M. K. F., Miller, R. D., & Hansteen, R. W. The influence of alcohol and marijuana on a manual tracking task. Paper presented at the International Automotive Engineering Congress, Detroit, Michigan, January 8-12, 1973.
235. Reifenstein, E. C., Jr., & Davidoff, E. The treatment of alcoholic psychoses with benzedrine sulfate: Preliminary report. *Journal of the American Medical Association*, 1938, 110: 1811-1812.

236. Ribeiro, A. L. Medico-legal aspects of alcoholic intoxication. *Medico-Legal Journal*, 1963, 31: 95-99.
237. Ritchie, J. M. The aliphatic alcohols. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 135-150.
238. Robins, L. N., Bates, W. M., & O'Neal, P. Adult drinking patterns of former problem children. In D. J. Pitman & C. R. Snyder (Eds.), *Society, culture, and drinking patterns*. New York: Wiley, 1962. Pp. 395-412.
239. Robins, L. N., Darvish, H. S., & Murphy, G. E. The long-term outcome for adolescent drug users: A follow-up study of 76 users and 146 non-users. In J. Zubin & A. M. Freedman (Eds.), *The psychopathology of adolescence*. New York: Grune & Stratton, 1970. Pp. 159-180.
240. Robins, L. N., & Murphy, G. E. Drug use in a normal population of young negro men. *American Journal of Public Health*, 1967, 9: 1580-1596.
241. Robins, E., Murphy, G., Wilkinson, R., Gassner, S., & Keyes, J. Some clinical considerations in the prevention of suicides based on a study of one hundred and thirty-four successful suicides. *American Journal of Public Health*, 1959, 49: 888-889.
242. Room, R. Drinking laws and drinking behavior: Some past experience. Paper presented to the Symposium on Law and Drinking Behavior at the Centre for Alcohol Studies, University of North Carolina, Chapel Hill, N.C., November 17-19, 1970.
243. R.C.M.P. Gazette. Illicitly distilled spirits. *R.C.M.P. Gazette*, September, 1970: 13-18.
244. Rubin, E., & Lieber, C. S. Alcoholism, alcohol, and drugs. *Science*, 1971, 172: 1097-1102.
245. Rushing, W. A. Suicide and the interaction of alcoholism (liver cirrhosis) with the social situation. *Quarterly Journal of Studies on Alcohol*, 1969, 30: 93-103.
246. Russell, J. *Survey of drug use in selected British Columbia schools*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
247. Ryback, R. S. The continuum and specificity of the effects of alcohol on memory: A review. *Quarterly Journal of Studies on Alcohol*, 1971, 32: 995-1016.
248. Sarlanis, K., Lewis, E. M., & Pazera, E. E. *Target detection as a function of brightness contrast, initial position in the visual field, and alcohol*. Washington, D.C.: United States Department of Health, Education and Welfare, 1970.
249. Schapiro, H., Wruble, L. D., & Britt, L. G. The possible mechanism of alcohol in the production of acute pancreatitis. *Surgery*, 1966, 60: 1108-1111.
250. Schlatter, E. K. E., & Lal, S. Treatment of alcoholism with Dent's oral apomorphine method. *Quarterly Journal of Studies on Alcohol*, 1972, 33: 430-436.
251. Schmidt, W., & de Lint, J. Alcohol and drug use in Canada. Unpublished manuscript, Project 114, Substudy 15-4 & 10-71, Addiction Research Foundation, Toronto, 1971. (Forthcoming as *Erfahrungen in Kanada*. In W. Steinbrecher & H. Solms (Eds.), *Sucht und Missbrauch*, Stuttgart: Thieme, in press.)
252. Schmidt, W., & de Lint, J. Causes of death of alcoholics. Unpublished manuscript, Project J-159, Substudy 14-4 & 10-71, Addiction Research Foundation, Toronto, 1971.
253. Schmidt, W., & Smart, R. G. Alcoholics, drinking, and traffic accidents. *Quarterly Journal of Studies on Alcohol*, 1959, 20: 631-644.
254. Schmidt, W., Smart, R. G., & Moss, M. K. *Social class and the treatment of alcoholism: An investigation of social class as a determinant of diagnosis, prognosis, and therapy*. Toronto: University of Toronto Press, 1968.
255. Schonfield, J. Differences in smoking, drinking, and social behaviour by race and delinquency status in adolescent males. *Adolescence*, 1967, 1: 367-380.

256. Schuckit, M., Goodwin, D. W., & Winokur, G. The half-sibling approach in a genetic study of alcoholism. In L. Robins & R. Rolf (Eds.), *Life histories of psychopathology*. Minneapolis: University of Minnesota, 1971.
257. Schweitzer, H. Visual perception after administration of carbamazepine in combination with alcohol. *Blutalkohol*, 1970, 7: 371-381.
258. Seeley, J. R. Death by liver cirrhosis and the price of beverage alcohol. *Canadian Medical Association Journal*, 1960, 83: 1361-1366.
259. Seevers, M. H. Morphine and ethanol physical dependence: A critique of hypothesis. *Science*, 1970, 170: 1113-1115.
260. Segal, M. The differentiated pharmacological approach to drug induced intoxication and dependence. Paper presented at the meeting of the Canadian Hospital Association, Montreal, February 3-5, 1971.
261. Segòvia-Riquelme, N., Varela, A., & Mardones, J. Appetite for alcohol. In Y. Israel & J. Mardones (Eds.), *Biological basis of alcoholism*. New York: Wiley-Interscience, 1971. Pp. 299-363.
262. Selzer, M. L., Vanosdall, F. E., & Chapman, M. Alcoholism in a problem driver group: A field trial of the Michigan Alcoholism Screening Test (MAST). *Journal of Safety Research*, 1971, 3: 176-181.
263. Senders, J. W., Kristofferson, A. L., Levison, W. R., Dietrich, C. W., & Ward, J. L. The attentional demands of automobile driving. *Highway Research Record*, 1967, 195: 15-33.
264. Seneca, Epistle LXXXIII, On drunkenness. *Quarterly Journal of Studies on Alcohol*, 1942, 3: 320-327.
265. Seydel, U., & Biehl, B. Effects of simultaneous ingestion of alcohol and antihistamine drugs on performance in psychologic driving tests. In H. Schneble (Ed.), *Alkohol und Verkehrssicherheit*. Freiburg im Breisgau (Germany): Verlag, 1970. Pp. 185-191.
266. Shakespeare, W. *Macbeth*, II, iii.
267. Shick, J. F. E., Smith, D. E., & Meyers, F. H. Use of marijuana in the Haight-Ashbury subculture. *Journal of Psychedelic Drugs*, 1968, 2: 49-66.
268. Shober, E. J. Views on the etiology of alcoholism. III. The behaviouristic view. In H. D. Kruse (Ed.), *Alcoholism as a medical problem*. New York: Hoeber-Harper, 1956.
269. Smart, R. G. Alcohol and alcoholism in traffic accident research. *Addictions*, 1967, 14: 21-33.
270. Smart, R. G. The effects of alcohol on conflict and avoidance behaviour. *Quarterly Journal of Studies on Alcohol*, 1965, 26: 187-205.
271. Smart, R. G., & Fejer, D. Marijuana use among adults in Toronto. Unpublished manuscript, Project J-183, Substudy 6-7 & Jo-71, Addiction Research Foundation, Toronto, 1971.
272. Smart, R. G., Fejer, D., & White, J. Drug use trends among metropolitan Toronto students: A study of changes from 1968 to 1972. Unpublished manuscript, Project J-183, Substudy 512, Addiction Research Foundation, Toronto, 1972.
273. Soueif, M. I. The use of cannabis in Egypt: A behavioural study. *Bulletin on Narcotics*, 1971, 23: 17-28.
274. Spector, N. H. Alcohol breath tests: Gross errors in current methods of measuring alveolar gas concentrations. *Science*, 1971, 172: 57-59.
275. Stevenson, G. H., Lingley, L. R. A., Trasov, G. E., & Stanfield, H. Drug addiction in British Columbia. Unpublished manuscript, University of British Columbia, Vancouver, 1956.

276. Stroh, C. M. Alcohol and highway safety. *Canadian Psychologist*, 1973, 14: 29-33.
277. Sundby, P. *Alcoholism and mortality*. Oslo: Universitetsforlaget, 1967.
278. Sunshine, I. (Ed.) *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
279. Takala, M., Pihkanen, T. A., & Markkanen, T. The effects of distilled and brewed beverages: A physiological, neurological and psychological study. *Finnish Foundation of Alcohol Studies*, 1957, No. 4.
280. Tamerin, J. S., Weiner, S., Poppen, R., Steinglass, P., & Mendelson, J. H. Alcohol and memory: Amnesia and short-term memory function during experimentally induced intoxication. *American Journal of Psychiatry*, 1971, 127: 95-100.
281. Tashiro, M., & Lipscomb, W. R. Mortality experience of alcoholics. *Quarterly Journal of Studies on Alcohol*, 1963, 24: 203-212.
282. Taylor, J. D., Wilson, L., Nash, C. W., & Cameron, D. F. The effects of ethyl alcohol and amphetamine on performance. *Proceedings of the Canadian Federation of Biological Societies*, 1964, 7: 36.
283. Taylor, N. *Narcotics: Nature's dangerous gifts*. New York: Dell, 1966.
284. Teger, A. I., Katkin, E. S., & Pruitt, D. G. Effects of alcoholic beverages and their congener content on level and style of risk taking. *Journal of Personality and Social Psychology*, 1969, 11: 170-176.
285. Termansen, P. E. Suicide and attempted suicide in Vancouver—A study of psychosocial variables associated with suicide and attempted suicide. Paper presented at the Joint Meeting of the Canadian Psychiatric Association, Quebec Psychiatric Association, Royal College of Psychiatrists, Montreal, June 7-10, 1972.
286. Terris, M. Epidemiology of cirrhosis of the liver: National mortality data. *American Journal of Public Health*, 1967, 57: 2076-2088.
287. Traffic Injury Research Foundation of Canada. 15 per cent of auto deaths are suicides say investigators. *Ontario Traffic Safety News Letter*, 1972, 5: 2.
288. Tuerk, I., & Gorwitz, K. Mortality among alcoholics. *Maryland Medical Journal*, 1967, 16: 82-83.
289. Tyrer, P. Propranolol in alcohol addiction. *Lancet*, 1972, 2: 707.
290. Udell, J. G., & Smith, R. S. Attitudes and the usage of other drugs among users and nonusers of marijuana in a high school population. Bureau of Business Research and Service, Graduate School of Business, University of Wisconsin, Madison, Wisconsin, October, 1969. (Wisconsin Project Reports, 4, no. 4.)
291. Ullman, A. Sociocultural backgrounds of alcoholism. *Annals of the American Academy of Political and Social Science*, 1958, 315: 48-54.
292. United States, Department of Health, Education and Welfare. *First special report to the U.S. Congress on alcohol and health*. Washington, D.C.: U.S. Government Printing Office, 1971.
293. United States, Department of Transportation. *1968 alcohol and highway safety report*. Washington, D.C.: U.S. Government Printing Office, 1968.
294. United States, President's Commission on Law Enforcement & Administration of Justice. *Task force report: Narcotics, marijuana and dangerous drugs. Findings and recommendations*. Washington, D.C.: U.S. Government Printing Office, 1969.
295. Vaillant, G. E. The natural history of narcotic drug addiction. *Seminars in Psychiatry*, 1970, 2: 486-498.
296. Vaillant, G. E. A twelve-year follow-up of New York narcotic addicts: I. The relation of treatment to outcome. *American Journal of Psychiatry*, 1966, 122: 727-737.
297. Venho, I. R., Eerola, E. V., & Vartianen, O. Sensitization to morphine by experimentally induced alcoholism in white mice. *Annales Medicinæ Experimentalis et Biologiae Fenniae*, 1955, 33: 249-252.

298. Victor, M., & Adams, R. D. The effect of alcohol on the nervous system. *Research Publications of the Association for Nervous and Mental Diseases*, 1953, 32: 526-573.
299. Voas, R. B. *Activities and accomplishments in conformity with the Highway Safety Act of 1966*. (DOT-HS-820-239) Washington, D.C.: U.S. Department of Transportation, National Highway Safety Administration, 1973.
300. Wagner, H.-J. Überprüfung des Leistungsverhaltens unter der Einwirkung verschiedener Antihistaminica. [Testing performance under the influence of different antihistaminic drugs.] *Arzneimittel—Forschung*, 1962, 12: 1065-1070.
301. Wagner, K., & Wagner, H.-J. Nil nocere! Hazards of treatment of accident victims who are under the influence of alcohol (with barbiturates, morphine and polamidonone). (Abstract) In E. Polacsek, T. Barnes, N. Turner, R. Hall, & C. Weise. *Interaction of alcohol and other drugs*. (2nd rev. ed.) Toronto: Addiction Research Foundation, 1972. P. 1405.
302. Waller, J. A. Chronic medical conditions and traffic safety. *New England Journal of Medicine*, 1965, 273: 1413-1420.
303. Waller, J. A. Drugs and highway crashes. *Journal of the American Medical Association*, 1971, 215: 1477-1482.
304. Waller, J. A. Nonhighway injury fatalities—I. The roles of alcohol and problem drinking, drugs and medical impairment. *Journal of Chronic Diseases*, 1972, 25: 33-45.
305. Wallgren, H. Absorption, diffusion, distribution and elimination of ethanol: Effect on biological membranes. In C. Radouco-Thomas (Ed.), *International encyclopedia of pharmacology and therapeutics*. Section 20. *Alcohols and derivatives*. Vol. I. Oxford: Pergamon, 1970. Pp. 161-188.
306. Wallgren, H., & Barry, H. *Actions of alcohol*. Vol. I. New York: Elsevier, 1970.
307. Walls, H. J., & Brownlie, A. R. *Drink, drugs and driving*. Toronto: Carswell, 1970.
308. Walters, P. A., Jr., Goethals, G. W., & Pope, H. G. Drug use and life-style among 500 college undergraduates. *Archives of General Psychiatry*, 1972, 26: 92-96.
309. Whitehead, P. C. Head or brain? Drug use and academic performance. Unpublished manuscript, Department of Sociology, Dalhousie University, Halifax, 1969.
310. Whitney, D. D. The poisonous effects of alcoholic beverages not proportional to their alcoholic contents. *Science*, 1911, 33: 587-590.
311. Wilson, L., Taylor, J. D., Nash, C. W., & Cameron, D. F. The combined effects of ethanol and amphetamine sulfate on performance of human subjects. *Canadian Medical Association Journal*, 1966, 94: 478-484.
312. Winkler, E. G., Weissman, M., & McDermaid, G. Alcoholism and anti-social behavior. Statistical analysis. *Psychiatric Quarterly Supplement*, 1954, 28: 242-254.
313. Wolff, P. H. Ethnic differences in alcohol sensitivity. *Science*, 1972, 175: 449-450.
314. Wolfgang, M., & Strohm, R. B. The relationship between alcohol and criminal homicide. *Quarterly Journal of Studies on Alcohol*, 1956, 17: 411-425.
315. Wynder, E. L., & Bross, J. J. Aetiological factors in mouth cancer. *British Medical Journal*, 1957, 1: 1139-1143.
316. Wynder, E. L., & Bross, I. J. A study of etiological factors in cancer of the esophagus. *Cancer*, 1961, 14: 389-413.
317. Wynder, E. L., Bross, I. J., & Day, E. Epidemiological approach to the etiology of cancer of the larynx. *Journal of the American Medical Association*, 1956, 160: 1384-1391.
318. Zinberg, N. E., & Weil, A. T. A comparison of marijuana users and non-users. *Nature*, 1970, 226: 119-123.

319. Zirkle, G. A., McAtee, O. B., King, P. D., & Van Dyke, R. Meprobamate and small amounts of alcohol: Effects on human ability, coordination and judgement. *Journal of the American Medical Association*, 1960, 173: 1823-1825.

A.7 BARBITURATES

1. American Medical Association, Committee on Alcoholism and Addiction. Dependence on barbiturates and other sedative drugs. *Journal of the American Medical Association*, 1965, 193: 673-677.
2. Arduini, A., & Arduini, M. G. Effect of drugs and metabolic alterations on brain stem arousal mechanisms. *Journal of Pharmacology and Experimental Therapeutics*, 1954, 110: 76-85.
3. Ausubel, D. P. *Drug addictions: Physiological, psychological, and sociological aspects*. New York: Random House, 1958.
4. Baden, M. M. Methadone related deaths in New York City. *International Journal of the Addictions*, 1970, 5: 489-498.
5. Baden, M. M., Valanju, N. N., Verma, S. K., & Valanju, S. N. Confirmed identification of biotransformed drugs of abuse in urine. *American Journal of Clinical Pathology*, 1972, 57: 43-51.
6. Beckstead, H. D., & French, W. N. *Some analytical methods for drugs subject to abuse*. Ottawa: Department of National Health and Welfare, 1971.
7. Belleville, R. E., & Fraser, H. F. Tolerance to some effects of barbiturates. *Journal of Pharmacology and Experimental Therapeutics*, 1957, 120: 469-474.
8. Berger, F. M. Drugs and suicide in the United States. *Clinical Pharmacology and Therapeutics*, 1967, 8: 219-223.
9. Bleyer, W. A., & Marshall, R. E. Barbiturate withdrawal syndrome in a passively addicted infant. *Journal of the American Medical Association*, 1972, 221: 185-186.
10. Bond, A. J., & Lader, M. H. Residual effects of hypnotics. *Psychopharmacologia*, 1972, 25: 117-132.
11. Borkenstein, R. F., Crowther, R. F., Shumate, R. P., Ziel, W. B., & Zylman, R. *The role of the drinking driver in traffic accidents*. Bloomington, Ind.: Department of Police Administration, Indiana University, 1964.
12. Brophy, J. J. Suicide attempts with psychotherapeutic drugs. *Archives of General Psychiatry*, 1967, 17: 652-657.
13. Bush, M. P., & Sanders, E. Metabolic fate of drugs: Barbiturates and closely related compounds. *Annual Review of Pharmacology*, 1967, 7: 57-76.
14. Canada, Department of National Health and Welfare, Food and Drug Directorate (now Health Protection Branch), Biostatistics Division. Poison control program statistics. Unpublished manuscripts, Ottawa, 1969, 1970.
15. Canada, Statistics Canada. *Causes of death: Provinces by sex and Canada by sex and age (1971)*. Ottawa: Information Canada, 1972.
16. Canada, Statistics Canada. *Mental health statistics. Vol. 1. Institutional admissions and separations (1970)*. Ottawa: Information Canada, 1972.
17. Canadian Medical Association. Interim brief submitted to the Commission at Montreal, November 6, 1969.
18. Canadian Medical Association. National prescribing habits survey, February 1971. In Canadian Medical Association, Brief submitted to the Commission at Ottawa, April, 1971.
19. Carpenter, J. A., & Varley, M. The joint action of tranquilizers and alcohol on driving. In *Proceedings of the Third International Conference on Alcohol and Road Traffic* (London), 1962. Pp. 156-161.

20. Chambers, C. D. Barbiturate-sedative abuse: A study of prevalence among narcotic abusers. *International Journal of the Addictions*, 1969, 4: 45-57.
21. Clarke, E. G. C. (Ed.) *Isolation and identification of drugs*. London: Pharmaceutical, 1969.
22. Cohen, S. *The drug dilemma*. Toronto: McGraw-Hill, 1969.
23. Coldwell, B. B., Trenholm, H. L., Thomas, B. H., Wiberg, G. S., & Iverson, F. Metabolic and pharmacokinetic studies on the interaction of ethanol and barbiturates. *Clinical Toxicology*, 1972, 5: 34.
24. Comstock, E. G. (Director, Institute of Clinical Toxicology, Houston, Texas) Unpublished information communicated to the Commission, 1972.
25. Conney, A. H. Pharmacological implications of microsomal enzyme induction. *Pharmacological Reviews*, 1967, 19: 317-366.
26. Conney, A. H., & Burns, J. J. Metabolic interactions among environmental chemicals and drugs. *Science*, 1972, 178: 576-586.
27. Cooperstock, R., & Sims, M. Hidden drug problems: Prescription drug use in an urban population. Unpublished manuscript, Project I-143, Substudy 1-31 & 29-69, Addiction Research Foundation, Toronto, 1969.
28. Cumberlidge, M. C. The abuse of barbiturates by heroin addicts. *Canadian Medical Association Journal*, 1968, 98: 1045-1049.
29. Davis, F. B. Sex differences in suicide and attempted suicide. *Diseases of the Nervous System*, 1968, 23: 193-194.
30. Davis, J. M., Bartlett, E., & Termini, B. A. Overdosage of psychotropic drugs: A review. Part I: Major and minor tranquilizers. *Diseases of the Nervous System*, 1968, 29: 157-164.
31. Davis, J. M., Bartlett, E., & Termini, B. A. Overdosage of psychotropic drugs. A review. Part II: Antidepressants and other psychotropic agents. *Diseases of the Nervous System*, 1968, 29: 246-256.
32. Deneau, G. A., Clima, A., & Wilson, M. Evaluation of sedative-hypnotic agents or barbiturate-like physiological dependence capacity in the dog. In *Committee on problems of drug dependence*. Washington, D.C.: National Academy of Sciences—National Research Council, 1968.
33. Desmond, M. M., Schwanecke, R. P., Wilson, G. S., Yasunaga, S., & Buradorff, I. Maternal barbiturate utilization and neonatal withdrawal symptomatology. *Journal of Pediatrics*, 1972, 80: 190-197.
34. Devenyi, P. Barbiturate abuse in young people. *Addictions*, 1970, 17: 19-24.
35. Devenyi, P., & Wilson, M. Abuse of barbiturates in an alcoholic population. *Canadian Medical Association Journal*, 1971, 104: 219-221.
36. Devenyi, P., & Wilson, M. Barbiturate abuse and addiction and their relationship to alcohol and alcoholism. *Canadian Medical Association Journal*, 1971, 104: 215-218.
37. Dobos, J. K., Phillips, J., & Cobo, G. A. Acute barbiturate intoxication. *Journal of the American Medical Association*, 1961, 176: 272-278.
38. Dole, V. P., Crowther, A., Johnson, J., Monsalvatge, M., Biller, B., & Nelson, S. S. Detection of narcotic sedative and amphetamine drugs in urine. *New York State Journal of Medicine*, 1972, 72: 471-476.
39. Domino, E. F. Comparative pharmacology of some psychosedatives. In H. Kalant & R. D. Hawkins (Eds.), *Experimental approaches to the study of drug dependence*. Toronto: University of Toronto Press, 1969. Pp. 34-75.
40. Domino, E. F. Human pharmacology of tranquilizing drugs. *Clinical Pharmacology and Therapeutics*, 1962, 3: 599-664.

41. Eddy, N. B. Comments and suggestions regarding barbiturates and their effects. Unpublished Commission research project, 1970.
42. Eddy, N. B., Halbach, H., Isbell, H., & Seevers, M. H. Drug dependence: Its significance and characteristics. *Bulletin of the World Health Organization*, 1965, 32: 721-733.
43. Essig, C. F. Addiction to barbiturate and non-barbiturate sedative drugs. In A. Wikler (Ed.), *The addictive states*. Baltimore: Williams & Wilkins, 1968.
44. Essig, C. F. Clinical and experimental aspects of barbiturate withdrawal convulsions. *Epilepsia*, 1967, 8: 21-30.
45. Evans, J., Lewis, S., Gibb, A., & Cheetham, M. Sleep and barbiturates: Some experiences and observations. *British Medical Journal*, 1968, 4: 291-293.
46. Ewing, J. A. Addictions. II: Non-narcotic addictive agents. In A. M. Freedman & H. I. Kaplan (Eds.), *Comprehensive textbook of psychiatry*. Baltimore: Williams & Wilkins, 1967.
47. Fernandes, M., & Coper, H. The role of vehicles in cannabis application and interaction between cannabis and central active drugs. (Abstract) *Acta Pharmaceutica Suecica*, 1971, 8: 692-693.
48. Flynn, E. J., & Spector, S. Determination of barbiturate derivatives by radioimmunoassay. *Journal of Pharmacology and Experimental Therapeutics*, 1972, 181: 547-554.
49. Forney, R. B., & Hughes, F. W. Interaction between alcohol and psycho-pharmacological drugs. In C. Radouco-Thomas (Ed.), *International encyclopedia of pharmacology and therapeutics*. Section 20. *Alcohols and derivatives*. Vol. II. Oxford: Pergamon, 1970. Pp. 445-461.
50. Fort, J. The problem of barbiturates in the United States of America. *Bulletin on Narcotics*, 1964, 16: 17-35.
51. Fraser, H. F., Isbell, H., Eisenman, A. J. Wikler, A., & Pescor, F. T. Chronic barbiturate intoxication—Further studies. *Archives of Internal Medicine*, 1954, 94: 34-41.
52. Fraser, H. G., Shaver, M. R., Maxwell, E. S., & Isbell, H. Death due to withdrawal of barbiturates. *Annals of Internal Medicine*, 1953, 38: 1319-1325.
53. Fraser, H. F., Wikler, A., Essig, C. F., & Isbell, H. Degree of physical dependence induced by secobarbital and pentobarbital. *Journal of the American Medical Association*, 1958, 166: 126.
54. Fraser, H. F., Wikler, A., Isbell, H., & Johnson, N. K. Partial equivalence of chronic alcohol and barbiturate intoxications. *Quarterly Journal of Studies on Alcohol*, 1957, 18: 541-551.
55. Garbutt, G. D., & Goldstein, A. Blind comparison of three methadone maintenance dosages in 180 patients. *Proceedings of the Fourth National Conference on Methadone Treatment*. New York: National Association for Prevention of Addiction to Narcotics, 1972.
56. Garriott, J. C., Forney, R. B., Hughes, F. W., & Richards, A. B. Pharmacologic properties of some cannabis related compounds. *Archives Internationales de Pharmacodynamie et de Therapie*, 1968, 171: 425-434.
57. Gaspar, M. Statement. In United States, Ninety-second Congress, Senate, Subcommittee to Investigate Juvenile Delinquency. *Barbiturate abuse in the United States*. Washington, D.C.: U.S. Government Printing Office, 1972. Pp. 14-15.
58. Gill, E. W., Paton, W. D. M., & Pertwee, R. G. Preliminary experiments on the chemistry and pharmacology of cannabis. *Nature*, 1970, 228: 134-136.
59. Gillespie, R. D. On the alleged dangers of the barbiturates. *Lancet*, 1934, 226: 337-345.
60. Glatt, M. M. The abuse of barbiturates in the United Kingdom. *Bulletin on Narcotics*, 1962, 14: 19-38.

61. Green, M., & Blackwell, J. C. Final monitoring project. Unpublished Commission research project, 1972.
62. Halisky, T. (Field Operations Directorate, Health Protection Branch, Department of National Health and Welfare, Ottawa) Unpublished information provided to the Commission, 1972.
63. Halliday R. Barbiturate abuse: An iatrogenic disorder? *British Columbia Medical Journal*, 1967, 9: 374-378.
64. Hamburger E. Barbiturate use in narcotic addicts. *Journal of the American Medical Association*, 1964, 189: 112-114.
65. Hammond R. C. (Formerly Head, Narcotic Control Division, Food and Drug Directorate, Department of National Health and Welfare Ottawa) Personal communication to the Commission, 1969.
66. Hare R. R. (School of Medicine, University of Southern California, Los Angeles, California) Letter to the Commission, May 19, 1972.
67. Hemmings, B., & Miller, R. D. Non-medical drug use as a factor in hospitalization: A survey of Canadian psychiatric hospital records. Unpublished Commission research project, 1971.
68. Hill, H. E. Belleville, R. E., & Wikler, A. Studies on anxiety associated with anticipation of pain. II. Comparative effects of pentobarbital and morphine. *Archives of Neurology and Psychiatry*, 1955, 73: 602-608.
69. Hoffer, A., & Osmond, H. *The hallucinogens*. New York: Academic, 1967.
70. Hug, C. C. Characteristics and theories related to acute and chronic tolerance development. In S. J. Mulé & H. Brill (Eds.), *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972. Pp. 307-358.
71. Hughes, F. Drugs and drug-related non-drug crime. Unpublished Commission research paper, 1971.
72. Ianzito, B. M. Attempted suicide by drug ingestion. *Diseases of the Nervous System*, 1970, 31: 453-458.
73. Isbell, H. Abuse of barbiturates. *Bulletin on Narcotics*, 1957, 9: 14.
74. Isbell, H. Addiction to barbiturates in the barbiturate and abstinence syndrome. *Annals of Internal Medicine*, 1950, 33: 108-121.
75. Isbell, H., Altschul, S., Kornetsky, C. H., Eisenman, A. J., Flanary, H. G., & Fraser, H. F. Chronic barbiturate intoxication—An experimental study. *Archives of Neurology and Psychiatry* 1950, 64: 1-28.
76. Isbell, H., & Fraser, H. F. Addiction to analgesics and barbiturates. *Journal of Pharmacology and Experimental Therapeutics*, Part II, 1950, 99: 355-397.
77. Isbell, H., Wikler, A., Belleville, R. E., Essig, C. F. & Hill, H. E. Minimal dose of barbiturates required to produce physical dependence. *Federation Proceedings*, 1956, 15: 423.
78. Itil, T. M. Electroencephalography and pharmacopsychiatry clinical psychopharmacology. In F. A. Freyhan, N. Petrillovitch, & P. Pichot (Eds.), *Modern problems of pharmacopsychiatry*. Basel: Karger, 1968.
79. Jaffe, J. H. Drug addiction and drug abuse. In L. S. Goodman & A. Gilman, *The pharmacological basis of therapeutics*. (3rd ed.) Toronto: Macmillan, 1965 Pp. 285-311.
80. Jetter, W. W., & McLean, R. Poisoning by the synergistic effect of phenobarbital and ethyl alcohol: An experimental study. *Archives of Pathology*, 1943, 36: 112-122.
81. Johnson, F. G., Ferrence, R., & Whitehead, P. C. Self-injury among patients: Possibilities for identification and intervention. Paper presented to the Joint Meeting of the Canadian Psychiatric Association, Quebec Psychiatric Association and Royal College of Psychiatrists, Montreal, June, 1972.

82. Jones, D. I. R. Self-poisoning with drugs—A view from a general medical unit. *Practitioner*, 1969, 203: 73-78.
83. Kaistha, K. K. Drug abuse screening programs: Detection procedures, development costs, street-sample analysis, and field tests. *Journal of Pharmaceutical Sciences*, 1972, 61: 655-679.
84. Kalant, H., Khanna, J. M., & Marshman, J. Effect of chronic intake of ethanol on pentobarbital metabolism. *Journal of Pharmacology and Experimental Therapeutics*, 1970, 175: 318-324.
85. Kalant, H., LeBlanc, A. E., & Gibbins, R. J. Tolerance to, and dependence on, some non-opiate psychotropic drugs. *Pharmacological Reviews*, 1971, 23: 135-191.
86. Kananen, G., Osiewicz, R., & Sunshine, I. Barbiturate analysis—A current assessment. *Journal of Chromatographic Science*, 1972, 10: 283-287.
87. Kessel, N. The respectability of self-poisoning and the fashion of survival. *Journal of Psychosomatic Research*, 1966, 10: 29-36.
88. Kessel, N. Self-poisoning—Part I. *British Medical Journal*, 1965, 2: 1265-1270.
89. Kessel, N. Self-poisoning—Part II. *British Medical Journal*, 1965, 2: 1336-1340.
90. Kirbrick, E., & Smart, R. G. Psychotropic drug use and driving risk: A review and analysis. *Journal of Safety Research*, 1970, 2: 73-85.
91. Kielholz, P., Goldberg, L., Im Obersteg, J., Poeldinger, W., Ramseyer, A., & Schmid, P. Driving test to study the question of impaired driving fitness due to alcohol, tranquilizers and hypnotics. *Deutsche Medizinische Wochenschrift*, 1969, 94: 1-13.
92. Kielholz, P., Goldberg, L., Im Obersteg, J., Poeldinger, W., Ramseyer, A., & Schmid, P. Road traffic, tranquilizer and alcohol. *Deutsche Medizinische Wochenschrift*, 1972, 92: 1525-1531.
93. Kolb, L. *Drug addiction: A medical problem*. Springfield, Ill.: C. C. Thomas, 1962.
94. Kornetsky, C. H. Psychological effects of chronic barbiturate intoxication. *Archives of Neurology and Psychiatry*, 1951, 65: 557-567.
95. Kosman, M. E., & Unna, K. R. Effects of chronic administration of the amphetamines and other stimulants on behavior. *Clinical Pharmacology and Therapeutics*, 1968, 9: 240-254.
96. Krantz, J. C., Jr., Berger, H. J., & Welch, B. L. Blockade of (-)-trans- Δ^9 -tetrahydrocannabinol depressant effect by cannabinal in mice. *American Journal of Pharmacy*, 1971, 143: 149-152.
97. Lader, M. Barbiturates and sedatives. *Drugs & Society*, 1972, 6: 17-20.
98. Lal, H., Puri, S. K., & Fuller, G. C. Enhanced toxicity of carbon tetrachloride inhalation after phenobarbital pretreatment. *Pharmacological Research Communications*, 1970, 2: 143.
99. Lal, H., & Shah, H. C. Effect of methylchloroform inhalation on barbiturate hypnosis and hepatic drug metabolism in male mice. *Toxicology and Applied Pharmacology*, 1970, 17: 625.
100. Lehmann, H. E., & Ban, T. A. *Pharmacotherapy of tension and anxiety*. Springfield, Ill.: C. C. Thomas, 1970.
101. Leute, R. (Syva Company, Palo Alto, California) Personal communication to the Commission, 1973.
102. Levi, L. The barbituric acids, their chemical structure, synthesis and nomenclature. *Bulletin on Narcotics*, 1957, 9: 30-40.
103. Litman, R. E., Curphey, T., Shneidman, E. S., Farberow, N. L., & Tabachnick, N. Investigations of equivocal suicides. *Journal of the American Medical Association*, 1963, 184: 924-929.

104. Loomis, T. A., & West, T. C. Comparative sedative effects of a barbiturate and some tranquilizer drugs on normal subjects. *Journal of Pharmacology and Experimental Therapeutics*, 1958, 122: 525-531.
105. Marshman, J. A., & Gibbins, R. J. A note on the composition of illicit drugs. *Ontario Medical Review*, 1970, 37: 429-430, & 441.
106. Maynert, E. W. Sedatives and hypnotics. II: Barbiturates. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) Toronto: McGraw-Hill, 1965. Pp. 188-209.
107. McIntire, M. S. (Associate Professor of Pediatrics, University of Nebraska, Omaha, Nebraska) Personal communication to the Commission, June 8, 1972.
108. McIntire, M. S., & Angle, C. R. "Suicide" as seen in poison control centers. *Pediatrics*, 1971, 48: 914-922.
109. McKenzie, R. E., & Elliott, L. L. Effects of secobarbital and d-amphetamine on performance during a simulated air mission. *Aerospace Medicine*, 1965, 36: 774-779.
110. Mercer, G. W. The role of personality in determining reactions to non-narcotic drugs. Unpublished manuscript, Project J-183, Substudy 2-ME-71, Addiction Research Foundation, Toronto, 1971.
111. Miller, L., & Dimling, J. A. *Driver licensing and performance*. Vol. I. *Research review and recommendations*. Washington, D.C.: U.S. Department of Transportation, National Highway Safety Bureau, 1969. Pp. III.98-III.112.
112. Miller, R. D., Hansteen, R. W., Lehmann, H. E., Reid, L., Lonero, L., Adamec, C., Theodore, L., & Jones, B. The Commission's experimental studies of acute effects of marijuana, Δ^9 THC and alcohol in humans. Paper presented at the Meeting of the International College of Neuro-Psychopharmacology in Copenhagen, August 13-17, 1972. In press, *Proceedings of the 8th Symposium of the Collegium Internationale Neuro-Pharmacologicum*. Avicenum, Czechoslovak Medical Press, 1973.
113. Miller, R. D., & Hemmings, B. Drug-induced poisoning and death in Canada. Unpublished Commission research project, 1973.
114. Miller, R. D., Oestreicher, P., Marshman, J., Beckstead, H., Paterson, R., Larsson, G., Hemmings, B., Green, M., & Farmilo, C. Chemical analysis of illicit drugs in Canada. Unpublished Commission research project, 1972.
115. Misra, P. S., Lefevre, A., Rubin, E., & Lieber, C. S. Effect of ethanol ingestion on ethanol, meprobamate and pentobarbital metabolism. *Gastroenterology*, 1970, 58: 308.
116. Mitcheson, M., Davidson, J., Hawks, D., Hitchens, L., & Malone, S. Sedative abuse by heroin addicts. *Lancet*, March 21, 1970: 606-607.
117. Motto, J. A. Suicide attempts: A longitudinal view. *Archives of General Psychiatry*, 1965, 13: 516-520.
118. Napke, E. (Head, Poison Control and Drug Adverse Reaction Section, Department of National Health and Welfare, Ottawa) Preliminary Poison Control Program Statistics (1971) communicated to the Commission, 1973.
119. Nichols, J. L. Drug use and highway safety: A review of the literature. Report DOT-HS-012-1-019. Unpublished manuscript, U.S. Department of Transportation, National Highway Traffic Safety Administration, Washington, D.C., July, 1971.
120. Oswald, I., & Priest, R. G. Five weeks to escape the sleeping pill habit. *British Medical Journal*, 1965, 2: 1093-1095.
121. Page, H. (Chief, Vital Statistics Section, Statistics Canada, Ottawa.) Information on causes of death in Canada. Unpublished statistics provided to the Commission, 1972, 1973.
122. Paton, W. D. M. Cannabis. *Zenith*, 1970, 8: 15-17.
123. Paton, W. D. M. Drug dependence: Pharmacological and physiological aspects. *Journal of the Royal College of Physicians of London*, 1970, 4: 247-254.

124. Paton, W. D. M., & Pertwee, R. G. The general pharmacology of cannabis. (Abstract) *Acta Pharmaceutica Suecica*, 1971, 8: 691.
125. Price, H. L., & Dripps, R. D. General anesthetics. III. Intravenous anesthetics. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 93-97.
126. Radouco-Thomas, C. (Ed.) *International encyclopedia of pharmacology and therapeutics*. Section 20. *Alcohols and derivatives*. Vols. I & II. Oxford: Pergamon, 1970.
127. Reid, L. D., Hansteen, R. W., & Miller, R. D. The effects of cannabis and alcohol on psychomotor tracking performance. Unpublished Commission research project, 1971.
128. Richman, A., & Orlaw, R. Barbiturate mortality as an index of barbiturate use, Canada, 1950-1963. *Canadian Medical Association Journal*, 1965, 93: 1336-1339.
129. Riley, R. E. (Statistics Canada, Health and Welfare Division, Mental Health Section, Ottawa) Unpublished information communicated to the Commission, 1972.
130. Robinson, A. E. Forensic toxicology of psycho-active drugs. *Chemistry in Britain*, 1972, 8: 118-123.
131. Rosser, W. W. A survey of barbiturate, tranquilizer and amphetamine usage. *Canadian Family Physician*, 1969, 15: 39-41.
132. Rotenberg, G. N., & Hughes, F. N. (Eds.) *Compendium of pharmaceuticals and specialties (Canada) 1973*. (8th ed.) Toronto: Canadian Pharmaceutical Association, 1973.
133. Seevers, M. H. Abuse of barbiturates and amphetamines. *Post Graduate Medicine*, 1965, 37: 45-51.
134. Sharpless, S. K. Hypnotics and sedatives. I. The barbiturates. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 98-120.
135. Siegel, H. Human pulmonary pathology associated with narcotic and other addictive drugs. *Human Pathology*, 1972, 3: 55-56.
136. Siemens, A. J., Kalant, H., Khanna, J. M., Marshman, J., & Ho, G. Effect of cannabis on pentobarbital-induced sleeping time and pentobarbital metabolism in the rat. Unpublished manuscript, Department of Pharmacology, University of Toronto, and the Alcoholism and Drug Addiction Research Foundation, Toronto, 1973.
137. Sims, M. Psychoactive drugs prescribed by general practitioners for functional or emotional ailments. Unpublished manuscript, Project I-143, Substudy 5-29-71, Addiction Research Foundation, Toronto, 1971.
138. Smart, R. G., Schmidt, W., & Bateman, K. Psychoactive drugs and traffic accidents. *Journal of Safety Research*, 1969, 1: 67-73.
139. Smith, D. Symposium: Drug abuse. *Clinical Toxicology*, 1970, 3: 11-12.
140. Smith, D. E., Wesson, D. R., & Lannon, R. A. New developments in barbiturate abuse. *Clinical Toxicology*, 1970, 3: 57-65.
141. Smith, G. M., & Beecher, H. K. Amphetamine, secobarbital, and athletic performance. II. Subjective evaluations of performances, mood states, and physical states. *Journal of the American Medical Association*, 1960, 172: 1502-1514.
142. Smith, R. (Marin Open House, San Rafael, California) Personal communication to the Commission, 1972.
143. Spector, S., & Flynn, E. J. Barbiturates: Radioimmunoassay. *Science*, 1971, 174: 1036-1038.

144. Steinberg, H., Kumar, R., Kemp, I., & Bartley, H. Animal behaviour studies and some possible implications for man. In C. W. M. Wilson (Ed.), *The pharmacological and epidemiological aspects of adolescent drug dependence*. Oxford: Pergamon, 1968. Pp. 29-40.
145. Stengel, E. Attempted suicide: Its management in the hospital. *Lancet*, 1963, 1: 233-235.
146. Stengel, E., & Cook, N. G. *Attempted suicide: Its social significance and effects*. London: Chapman & Hall, 1958.
147. Stevenson, G. H., Lingley, L. R. A., Trasov, G. E., & Stanfield, H. Drug addiction in British Columbia. Unpublished manuscript, University of British Columbia, Vancouver, 1956.
148. Sunshine, I. (Ed.) *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
149. Swinyard, E. A., & Harvy, S. C. Sedatives and hypnotics. In J. E. Hoover (Ed.), *Remington's pharmaceutical sciences*. (4th ed.) Easton, Penn.: Mack, 1970.
150. Tatum, A. L. The present status of the barbiturate problem. *Physiological Reviews*, 1939, 19: 472-502.
151. Teitelbaum, D. T. Poisoning with psychoactive drugs. *Pediatric Clinics of North America*, 1970, 17: 557-567.
152. Termansen, P.E. Suicide and attempted suicide in Vancouver—A study of psychosocial variables associated with suicide and attempted suicide. Paper presented at the Joint Meeting of the Canadian Psychiatric Association, Quebec Psychiatric Association, Royal College of Psychiatrists, Montreal, June 7-10, 1972.
153. Termansen, P. E., Harris, R. E., & Broome, A. Suicide and attempted suicide in Vancouver. *British Columbia Medical Journal*, 1972, 14: 125-128.
154. Truitt, E. B., Jr. Pharmacological activity in a metabolite of 1-trans- Δ^8 -tetrahydrocannabinol. (Abstract) *Federation Proceedings*, 1970, 29: 619.
155. Tyler, D. B. Effect on marksmanship of some motion sickness preparations containing barbiturates and hyoscine. *Journal of Applied Physiology*, 1949, 1: 737-742.
156. United States, Department of Justice, Bureau of Narcotics and Dangerous Drugs. A study of current abuse and abuse potential of the sedative-hypnotic derivatives of barbiturate acid with control recommendations. Washington, D.C.: U.S. Government Printing Office, 1972.
157. United States, Ninety-second Congress, Senate, Subcommittee to Investigate Juvenile Delinquency. (Chairman, Senator Birch Bayh) *Barbiturate abuse in the United States*. Washington, D.C.: U.S. Government Printing Office, 1972.
158. Vogel, W. H. Toxicity of drugs and "street" drugs: Medical and legal problems. *Contemporary Drug Problems*, 1971-72, 1: 25-35.
159. Von Baeyer, A. Untersuchungen uber die harnsauregruppe. *Annalen der Chemie*, 1864, 130: 129. Cited by J. Fort. The problem of barbiturates in the United States of America. *Bulletin on Narcotics*, 1964, 16: 17-35.
160. Waller, J. A. Drugs and highway crashes—Can we separate fact from fancy? *Journal of the American Medical Association*, 1971, 215: 1477-1482.
161. Way, W. L., & Trevor, A. J. Sedative-hypnotics. *Anesthesiology*, 1971, 34: 170-182.
162. Weiss, J. M. A. The gamble with death in attempted suicide. *Psychiatry*, 1957, 20: 17-25.
163. Weiss, J. M. A., Nunez, N., & Schaie, K. W. Quantification of certain trends in attempted suicide. *Proceedings of the Third World Congress of Psychiatry*. Montreal: University of Toronto Press and McGill University Press, 1961. Pp. 1236-1240.

164. Whitlock, F. A. The syndrome of barbiturate dependence. *Medical Journal of Australia*, 1970, 2: 391-396.
165. Wikler, A. *The relation of psychiatry to pharmacology*. Baltimore: Williams & Wilkins, 1957.
166. Wikler, A. Relationship between clinical effects of barbiturates and their neuro-physiological mechanisms of action. *Federation Proceedings*, 1952, 11: 647-652.
167. Willcox, W. Discussion on the uses and dangers of hypnotic drugs other than alkaloids. *Proceedings of the Royal Society of Medicine*, 1934, 27: 489-495.
168. Winter, C. The potentiating effect of antihistaminic drugs upon the sedative action of barbiturates. *Journal of Pharmacology and Experimental Therapeutics*, 1948, 94: 7-11.
169. World Health Organization. *Report of a scientific group on research in psychopharmacology*. (WHO Technical Report Series No. 371), 1967. Pp. 1-39.

A.8 MINOR TRANQUILIZERS AND NON-BARBITURATE SEDATIVE-HYPNOTICS

1. Adriani, J., & Morton, R. C. Drug dependence: Important considerations from the anesthesiologist's viewpoint. *Anesthesia and Analgesia*, 1968, 47: 472.
2. American Medical Association, Committee on Alcoholism and Addiction. Dependence on barbiturates and other sedative drugs. *Journal of the American Medical Association*, 1965, 193: 673-677.
3. Aston, R. Barbiturates, alcohol, and tranquilizers. In S. J. Mulé & H. Brill (Eds.), *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972. Pp. 37-54.
4. Ayd, F. J. Meprobamate: A decade of experience. *Psychosomatics*, 1964, 5: 82-87.
5. Baden, M. M., Valanju, N. N., Verma, S. K., & Valanju, S. N. Confirmed identification of biotransformed drugs of abuse in urine. *American Journal of Clinical Pathology*, 1972, 57: 43-51.
6. Beaubien, J., Kristoff, F. E., Lehmann, H. E., & Ban, T. A. A comparison of the hypnotic properties of Mandrax and its two constituents. *Current Therapeutic Research*, 1968, 10: 231-232.
7. Beckstead, H. D., & French, W. N. *Some analytical methods for drugs subject to abuse*. Ottawa: Department of National Health and Welfare, August, 1971.
8. Benson, W. M., & Schiele, B. C. *Tranquilizing and antidepressive drugs (II)*. Springfield, Ill.: C. C. Thomas, 1962.
9. Berger, F. M. The chemistry and mode of action of tranquilizing drugs. *Annals of the New York Academy of Sciences*, 1957, 67: 685-700.
10. Berger, F. M. Drugs and suicide in the United States. *Clinical Pharmacology and Therapeutics*, 1967, 8: 219-223.
11. Berger, F. M., & Ludwig, B. Meprobamate and related compounds. *Psychopharmacological Agents*, 1964, 1: 103-135.
12. Bovet, D. Introduction to antihistamine agents and antergan derivatives. *Annals of the New York Academy of Sciences*, 1950, 50: 1089-1126.
13. Brophy, J. J. Suicide attempts with psychotherapeutic drugs. *Archives of General Psychiatry*, 1967, 17: 652-657.
14. Bush, M. P., & Sanders, E. Metabolic fate of drugs: Barbiturates and closely related compounds. *Annual Review of Pharmacology*, 1967, 7: 57-76.

15. Buxton, D. (Managing Director, Roussel Ltd., Montreal) Unpublished information communicated to the Commission, March, 1973.
16. Canada, Department of National Health and Welfare. *Canadian drug identification code* (1972). Ottawa: Information Canada, 1972.
17. Canada, Department of National Health and Welfare, Food and Drug Directorate (now Health Protection Branch), Biostatistics Division. Poison control program statistics. Unpublished manuscripts, Ottawa, 1969, 1970.
18. Canada, Statistics Canada. *Causes of death: Provinces by sex and Canada by sex and age* (1971). Ottawa: Information Canada, 1972.
19. Canadian Medical Association. National prescribing habits survey, February 1971. In Canadian Medical Association. Brief submitted to the Commission at Ottawa, April, 1971.
20. Carpenter, J. A. The joint action of alcohol and meprobamate. Unpublished manuscript, Center of Alcohol Studies, Rutgers University, New Brunswick, N.J., 1973.
21. Carpenter, J. A., & Varley, M. The joint action of tranquilizers and alcohol on driving. In *Proceedings of the Conference on Alcohol and Road Traffic* (London), 1962. Pp. 156-161.
22. Castaneda, C. *Journey to Ixtlan: The lessons of Don Juan*. New York: Simon & Schuster, 1972.
23. Clarke, E. G. C. (Ed.) *Isolation and identification of drugs*. London: Pharmaceutical, 1969.
24. Cohen, S. The use of tranquilizers. *Modern Treatment*, 1965, 2: 505-542.
25. Colmore, J. P., & Moore, J. D. Lack of dependence and withdrawal symptoms in healthy volunteers given high doses of tybamate. *Journal of Clinical Pharmacology*, 1967, 7: 319.
26. Crankshaw, D., & Roper, C. The effect of solvents on the potency of chlordiazepoxide, diazepam, medazepam and nitrazepam. *Journal of Pharmacy and Pharmacology*, 1971, 23: 313-321.
27. Cullumbine, H. Cholinergic blocking drugs. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) Toronto: McGraw-Hill, 1965. Pp. 450-462.
28. Davis, J. M., Bartlett, E., & Termini, B. A. Overdosage of psychotropic drugs: A review. Part I: Major and minor tranquilizers. *Diseases of the Nervous System*, 1968, 29: 157-164.
29. Davis, J. M., Bartlett, E., & Termini, B. A. Overdosage of psychotropic drugs: A review. Part II: Antidepressants and other psychotropic agents. *Diseases of the Nervous System*, 1968, 29: 246-256.
30. Dole, V. P., Crowther, A., Johnson, J., Monsalvatge, M., Biller, B., & Nelson, S. S. Detection of narcotic, sedative, and amphetamine drugs in urine. *New York State Journal of Medicine*, 1972, 72: 471-476.
31. Domino, E. F. Comparative pharmacology of some psychosedatives. In H. Kalant & R. D. Hawkins (Eds.), *Experimental approaches to the study of drug dependence*. Toronto: University of Toronto Press, 1969. Pp. 34-75.
32. Domino, E. F. Human pharmacology of tranquilizing drugs. *Clinical Pharmacology and Therapeutics*, 1962, 3: 599-664.
33. Domino, E. F. Psychosedative drugs. II: Meprobamate, chlordiazepoxide, and miscellaneous agents. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) Toronto: McGraw-Hill, 1965. Pp. 356-364.
34. Douglas, W. W. Histamine and antihistamines; 5-hydroxytryptamine and antagonists. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 621-662.

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35. Douglas, G., & Thompson, M. A controlled trial of 'Mandrax' v. amylobarbitone sodium. *British Journal of Clinical Practice*, 1968, 22: 19-20.
36. Eddy, N. B., Halbach, H., Isbell, H., & Seevers, M. H. Drug dependence: Its significance and characteristics. *Bulletin of the World Health Organization*, 1965, 32: 721-733.
37. Essig, C. F. Clinical aspects of barbiturate and sedative drug abuse. *American Journal of Hospital Pharmacy*, 1965: 140-143.
38. Essig, C. F. Addiction to nonbarbiturate sedative and tranquilizing drugs. *Clinical Pharmacology and Therapeutics*, 1964, 334-343.
39. Essig, C. F. Chronic abuse of sedative-hypnotic drugs. In C. J. D. Zarafonetis (Ed.), *Drug abuse. Proceedings of the international conference*. Philadelphia: Lea & Febiger, 1972. Pp. 205-215.
40. Essig, C. F. Newer sedative drugs that can cause states of intoxication and dependence of barbiturate type. *Journal of the American Medical Association*, 1966, 196: 126-129.
41. Essig, C. F., & Ainslie, J. D. Addiction to meprobamate. *Journal of the American Medical Association*, 1957, 164: 1382.
42. Ewart, R. B. L., & Priest, R. G. Methaqualone addiction and delirium tremens. *British Medical Journal*, 1967, 3: 92-93.
43. Feldman, H. S. The pill head menace—Barbiturates and tranquilizers: Non-hard core-addicting drugs. *Psychosomatics*, 1970, 11: 99-103.
44. Fernandes, M., & Coper, H. The role of vehicles in cannabis application and interaction between cannabis and central active drugs. (Abstract) *Acta Pharmaceutica Suecica*, 1971, 8: 692-693.
45. Forney, R. B., & Hughes, F. W. Interaction between alcohol and psycho-pharmacological drugs. In C. Radouco-Thomas (Ed.), *International encyclopedia of pharmacology and therapeutics*. Section 20. *Alcohols and derivatives*. Vol. II. Oxford: Pergamon, 1970. Pp. 445-461.
46. Genest, K., & Hughes, D. W. Natural products in Canadian pharmaceuticals. III. *Atropa belladonna* and related species. *Canadian Journal of Pharmaceutical Sciences*, 1969, 4: 16-22.
47. Gibbins, R. J. (Associate Research Director, Addiction Research Foundation, Toronto) Personal communication to the Commission, March 6, 1973.
48. Gitelson, S. Methaqualone-meprobamate poisoning. *Journal of the American Medical Association*, 1967, 201: 977-979.
49. Goode, E. *Drugs in American society*. New York: Knopf, 1972.
50. Gowdy, J. M. Stramonium intoxication: Review of symptomatology in 212 cases. *Journal of the American Medical Association*, 1972, 221: 585-587.
51. Green, M., & Blackwell, J. C. Final monitoring project. Unpublished Commission research project, 1972.
52. Greenblatt, D. J., & Shader, R. Meprobamate: A study of irrational drug use. *American Journal of Psychiatry*, 1971, 127: 1297-1303.
53. Haizlip, T. M., & Ewing, J. A. Meprobamate habituation: A controlled clinical study. *New England Journal of Medicine*, 1958, 258: 1181-1186.
54. Halisky, T. (Field Operations Directorate, Health Protection Branch, Department of National Health and Welfare, Ottawa) Unpublished information provided to the Commission, 1972.
55. Han, Y. H. Why do chronic alcoholics require more anesthesia? *Anesthesiology*, 1969, 30: 341.
56. Hemmings, B., & Miller, R. D. A survey of provincial coroners regarding drug-related deaths in Canada. Unpublished Commission research project, 1971-72.

57. Hines, L. R. Methaminodiazepoxide (Librium®): A psychotherapeutic drug. *Current Therapeutic Research*, 1960, 2: 277.
58. Hoffer, A., & Osmond, H. *The hallucinogens*. New York: Academic, 1967.
59. Hoffman-La Roche Ltd. Brief submitted to the Commission, November, 1970.
60. Hollister, L. E., Motzenbecker, F. T., & Began, R. O. Withdrawal reactions from chlordiazepoxide (Librium) *Psychopharmacologia*, 1961, 2: 63-68.
61. Hug, C. C. Characteristics and theories related to acute and chronic tolerance development. In S. J. Mulé & H. Brill (Eds.), *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972. Pp. 307-358.
62. Innes, I. R., & Nickerson, M. Drugs inhibiting the action of acetylcholine on structures innervated by postganglionic parasympathetic nerves (antimuscarinic or atropinic drugs). In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 524-548.
63. Jarvik, M. E. Drugs used in the treatment of psychiatric disorders. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 151-203.
64. Kaistha, K. K. Drug abuse screening programs: Detection procedures, development costs, street-sample analysis, and field tests. *Journal of Pharmaceutical Sciences*, 1972, 61: 655-679.
65. Kalant, H., LeBlanc, A. E., & Gibbins, R. J. Tolerance to, and dependence on, some non-opiate psychotropic drugs. *Pharmacological Reviews*, 1971, 23: 135-191.
66. Kales, A., Kales, J. D., Scharf, M. B., & Tan, T.-L. Hypnotics and altered sleep-dream patterns. II. All-night EEG studies of chloral hydrate, flurazepam, and methaqualone. *Archives of General Psychiatry*, 1970, 23: 219-225.
67. Katz, R. L. Drug therapy—Sedatives and tranquilizers. *New England Journal of Medicine*, 1972, 286: 757-760.
68. Kessel, N. Self-poisoning—Part I. *British Medical Journal*, 1965, 2: 1265-1270.
69. Kessel, N. Self-poisoning—Part II. *British Medical Journal*, 1965, 2: 1336-1340.
70. Keilty, S. R. Anesthesia for the alcoholic patient. *Anesthesia and Analgesia*, 1969, 48: 659.
71. Kibrick, E., & Smart, R. G. Psychotropic drug use and driving risk: A review and analysis. *Journal of Safety Research*, 1970, 2: 73-85.
72. Kielholz, P., Goldberg, L., Im Obersteg, J., Poeldinger, W., Ramseyer, A., & Schmid, P. Road traffic, tranquilizer and alcohol. *Deutsche medizinische Wochenschrift*, 1967, 92: 1525-1531.
73. Klatskin, G. Alcohol and its relation to liver damage. *Gastroenterology*, 1969, 41: 443-451.
74. Lader, M. Barbiturates and sedatives. *Drugs & Society*, 1972, 6(1): 17-20.
75. Landauer, A. A., & Milner, G. Antihistamines, alone and together with alcohol, in relation to driving safety. *Journal of Forensic Medicine*, 1971, 18: 128-139.
76. Lasagna, L. Across-the-counter hypnotics: Boon, hazard, or fraud? *Journal of Chronic Diseases*, 1956, 4: 552-554.
77. Laties, V. G., & Weiss, B. A critical review of the efficacy of meprobamate (Miltown, Equanil) in the treatment of anxiety. *Journal of Chronic Diseases*, 1958, 7: 500-519.
78. Left, R., & Bernstein, S. Proprietary hallucinogens. *Diseases of the Nervous System*, 1968, 29: 621-626.
79. Lehmann, H. E., & Ban, T. A. *Pharmacotherapy of tension and anxiety*. Springfield, Ill.: C. C. Thomas, 1970.

80. Loomis, T. A. Effects of alcohol on persons using tranquilizers. In J. D. J. Harvard (Ed.), *Alcohol and road traffic, Proceedings of Third International Conference on Alcohol and Road Traffic*, London, September 3-7, 1962. British Medical Association, 1963.
81. Loomis, T. A., & West, T. C. Comparative sedative effects of a barbiturate and some tranquilizer drugs on normal subjects. *Journal of Pharmacology and Experimental Therapeutics*, 1958, 122: 525-531.
82. Macdonald, A. Hallucinogens and other drugs with existing or potential popularity among chronic drug users. Unpublished manuscript, Addiction Research Foundation, Toronto, 1970.
83. Malcolm, A. I. *The pursuit of intoxication*. Toronto: Thorn, 1971.
84. Malcolm, R., & Miller, W. C. Dimenhydrinate (Dramamine) abuse: Hallucinogenic experiences with a proprietary antihistamine. *American Journal of Psychiatry*, 1972, 128: 1012-1013.
85. Margetts, E. L. Chloral delirium. *Psychiatric Quarterly*, 1950, 24: 278.
86. Marshman, J. A., & Gibbins, R. J. A note on the composition of illicit drugs. *Ontario Medical Review*, 1970, 37: 429-430, & 441.
87. Matthew, H., Proudfoot, A. T., Brown, S. S., & Smith, A. C. A. Mandrax poisoning: Conservative management of 116 patients. *British Medical Journal*, 1968, 2: 101-102.
88. Maynert, E. W. Sedatives and hypnotics. II: Barbiturates. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) Toronto: McGraw-Hill, 1965. Pp. 188-209.
89. Meares, R., Mills, J. E., & Oliver, L. E. A clinical comparison of two non-barbiturate hypnotics, mogadon and mandrax. *Medical Journal of Australia*, 1972, 1: 266-268.
90. Mendelson, J., Wexler, D., Leiderman, P. H., & Solomon, P. A study of addiction to nonethyl alcohol and other poisonous compounds. *Quarterly Journal of Studies on Alcohol*, 1957, 18: 561.
91. Miller, J. G. Objective measures of the effects of drugs on driver behavior. *Journal of the American Medical Association*, 1962, 179: 940-943.
92. Miller, R. D., & Hemmings, B. Drug-induced poisoning and death in Canada. Unpublished Commission research project, 1973.
93. Miller, R. D., Oestreicher, P., Marshman, J., Beckstead, H., Paterson, R., Larsson, G., Hemmings, B., Green, M., & Farmilo, C. Chemical analysis of illicit drugs in Canada. Unpublished Commission research project, 1972.
94. Mulé, S. J., & Brill, H. (Eds.) *Chemical and biological aspects of drug dependence*. Cleveland, Ohio: Chemical Rubber Publishing, 1972.
95. Murray, N. Covert effects of chlordiazepoxide therapy. *Journal of Neuropsychiatry*, 1962, 3: 168-170.
96. Napke, E. (Head, Poison Control and Drug Adverse Reaction Section, Department of National Health and Welfare, Ottawa) Preliminary Poison Control Program Statistics (1971) communicated to the Commission, 1973.
97. Nichols, J. L. Drug use and highway safety: A review of the literature. Report DOT-HS-012-1-019. Unpublished manuscript, U.S. Department of Transportation, National Highway Traffic Safety Administration, Washington, D.C., July, 1971.
98. Page, H. (Chief, Vital Statistics Section, Statistics Canada, Ottawa) Information on causes of death in Canada. Unpublished statistics provided to the Commission, 1972, 1973.
99. Reggiani, G., Hurlimann, A., & Theiss, E. Some aspects of the experimental and clinical toxicology of chlordiazepoxide. *Proceedings of the European Society for the Study of Drug Toxicity*, 1967, 9: 79-97.

100. Rickels, K. Anti-neurotic agents: Specific and non-specific effects. Paper presented at the Sixth Annual Meeting of the American College of Neuropsychopharmacology, San Juan, Puerto Rico, 1967.
101. Rickels, K., & Hesbacher, P. T. Over-the-counter daytime sedatives. *Journal of the American Medical Association*, 1973, 223: 29-33.
102. Robinson, A. E. Forensic toxicology of psycho-active drugs. *Chemistry in Britain*, 1972, 8: 118-123.
103. Ross, S., & Cole, J. O. Psychopharmacology. *Annual Review of Psychology*, 1960, 11: 415-438.
104. Rosser, W. W. A survey of barbiturate, tranquilizer and amphetamine usage. *Canadian Family Physician*, 1969, 15: 39-41.
105. Rotenberg, G. N., & Hughes, F. N. (Eds.) *Compendium of pharmaceuticals and specialties (Canada) 1973*. (8th ed.) Toronto: Canadian Pharmaceutical Association, 1973.
106. Roth, F. E., & Tabachnick, I. I. A. Histamine and antihistamines. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) Toronto: McGraw-Hill, 1965. Pp. 763-785.
107. Saletu, B., Saletu, M., & Itil, T. Effect of minor and major tranquilizers on somatosensory evoked potentials. *Psychopharmacologia*, 1972, 24: 347-358.
108. Schiele, B. C., & Benson, W. Tranquilizing and related drugs: A guide for the general physician. *Postgraduate Medicine*, 1958, 23: 484-492.
109. Sharpless, S. K. Hypnotics and sedatives: Miscellaneous agents. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 121-134.
110. Shelton, J., & Hollister, L. E. Simulated abuse of tybamate in man. *Journal of the American Medical Association*, 1967, 199: 116.
111. Sims, M. Drug overdoses in a Canadian city. Unpublished manuscript, Project J-172, Substudy 4-29-71, Addiction Research Foundation, Toronto, 1971.
112. Sine, H. E., McKenna, M. J., Law, M. R., & Murray, M. H. Emergency drug analysis. *Journal of Chromatographic Science*, 1972, 10: 297-302.
113. Sjöqvist, F., & Lasagna, L. The hypnotic efficacy of doxylamine. *Clinical Pharmacology and Therapeutics*, 1967, 8: 48-54.
114. Smart, R. G., Schmidt, W., & Bateman, K. Psychoactive drugs and traffic accidents. *Journal of Safety Research*, 1969, 1: 67-73.
115. Sunshine, I. (Ed.) *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
116. Swinyard, E. A., & Harvy, S. C. Sedatives and hypnotics. In J. E. Hoover (Ed.), *Remington's pharmaceutical sciences*. (4th ed.) Easton, Penn.: Mack, 1970.
117. Termanen, P. E., Harris, R. E., & Broome, A. Suicide and attempted suicide in Vancouver. *British Columbia Medical Journal*, 1972, 14: 125-128.
118. Tobin, J. M., & Lewis, W. D. C. New psychotherapeutic agent, chlordiazepoxide. *Journal of the American Medical Association*, 1960, 174: 1242.
119. Uhr, L., Pollard, J. C., & Miller, G. G. Behavioral effects of chronic administration of psychoactive drugs to anxious subjects. *Psychopharmacologia*, 1959, 1: 150-168.
120. United States, Department of Health, Education, and Welfare, Public Health Service, National Centre for Health Statistics. *International classification of diseases, adapted for use in the United States*. (8th rev. ed.) Vol. I. Washington, D.C.: U.S. Government Printing Office, 1969.
121. Waller, J. A. Drugs and highway crashes: Can we separate fact from fancy? *Journal of the American Medical Association*, 1971, 215: 1477-1482.

122. Way, W. L., & Trevor, A. J. Sedative-hypnotics. *Anesthesiology*, 1971, 34: 170-182.
123. Winek, C. L. Laboratory criteria for the adequacy of treatment and significance of blood levels. *Clinical Toxicology*, 1970, 3: 541-549.
124. Winter, C. The potentiating effect of antihistaminic drugs upon the sedative action of barbiturates. *Journal of Pharmacology and Experimental Therapeutics*, 1948, 94: 7-11.
125. World Health Organization. *Report of a scientific group on research in psychopharmacology*. (WHO Technical Report Series No. 371), 1967. Pp. 1-39.

A.9 VOLATILE SUBSTANCES: SOLVENTS AND GASES

1. Addiction Research Foundation of Ontario. *Facts about solvents*. Toronto: Addiction Research Foundation, 1969.
2. Allen, S. M. Glue sniffing. *International Journal of the Addictions*, 1966, 1: 147-149.
3. Azar, A., Zapp, J. A., Reinhardt, C. F., Stopps, G. J., & Del, N. Cardiac toxicity of aerosol propellants. *Journal of the American Medical Association*, 1971, 215: 1501-1502.
4. Baerg, R. D., & Kimberg, D. V. Centrilobular hepatic necrosis and acute renal failure in "solvent sniffers". *Annals of Internal Medicine*, 1970, 73: 713-720.
5. Barker, G. H., & Adams, W. T. Glue sniffers. *Sociology and Social Research*, 1962-63, 47: 298-310.
6. Barman, M. L., Sigel, N.B., & Beedle, D. B. Acute and chronic effects of glue sniffing. *California Medicine*, 1964, 100: 19-22.
7. Bass, M. Sudden sniffing death. *Journal of the American Medical Association*, 1970, 212: 2075-2079.
8. Beecher, H. K. Anesthesia's second power: Probing the mind. *Science*, 1947, 105: 164-166.
9. Blatherwick, C. E. Understanding glue sniffing. *Canadian Journal of Public Health*, 1972, 63: 272-276.
10. Bloomquist, E. R. Addiction, addicting drugs, and the anesthesiologist. *Journal of the American Medical Association*, 1959, 171: 518-523.
11. Brecher, E. M., and the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
12. Brozovsky, M., & Winkler, E. G. Glue sniffing in children and adolescents. *New York State Journal of Medicine*, 1965, 65: 1984-1989.
13. Chapel, J. L., & Thomas, G. Aerosol inhalation for 'kicks'. *Missouri Medicine*, 1970, 67: 378-380.
14. Chapman, R. A. (Formerly Director General, Food and Drug Directorate, Ottawa) Letter to the Commission, May 10, 1971.
15. Choy, T. Laboratory studies of inhalation anaesthetics. *British Journal of Anaesthesia*, 1969, 41: 827-833.
16. Clarke, E. G. C. (Ed.) *Isolation and identification of drugs*. London: Pharmaceutical, 1969.
17. Cohen, P. J. & Dripps, R. D. History and theories of general anesthesia. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 42-48.

18. Collom, W. D., & Winek, C. L. Detection of glue constituents in fatalities due to "glue-sniffing". *Clinical Toxicology*, 1970, 3: 125-130.
19. Connell, K. H. Ether drinking in Ulster. *Quarterly Journal of Studies on Alcohol*, 1965, 26: 629-653.
20. Corliss, L. M. A review of the evidence on glue-sniffing—A persistent problem. *Journal of School Health*, 1965, 35: 442-449.
21. Defalque, R. J. Pharmacology and toxicology of trichloroethylene. *Clinical Pharmacology and Therapeutics*, 1961, 2: 665-688.
22. Dodds, J., & Santostefano, S. A comparison of the cognitive functioning of glue-sniffers and nonsniffers. *Journal of Pediatrics*, 1964, 64: 565-570.
23. Ferguson, R. K., & Vernon, R. J. Trichloroethylene in combination with CNS drugs. *Archives of Environmental Health*, 1970, 20: 462-467.
24. Forni, A., Pacifico, E., & Limonta, A. Chromosome studies in workers exposed to benzene or toluene or both. *Archives of Environmental Health*, 1971, 22: 373.
25. Gellman, V. Glue-sniffing among Winnipeg school children. *Canadian Medical Association Journal*, 1968, 98: 411-413.
26. Gill, E. W., Paton, W. D. M., & Pertwee, R. G. Preliminary experiments on the chemistry and pharmacology of cannabis. *Nature*, 1970, 228: 134-136.
27. Glaser, F. B. Inhalation psychosis and related states. *Archives of General Psychiatry*, 1966, 17: 315-322.
28. Glaser, H. H., & Massengale, O. N. Glue-sniffing in children: Deliberate inhalation of vaporized plastic cements. *Journal of the American Medical Association*, 1962, 181: 300-303.
29. Greenberg, L., Mayers, M. R., Heimann, H., & Moskowitz, S. The effects of exposure to toluene in industry. *Journal of the American Medical Association*, 1942, 118: 573-578.
30. Harms, E. (Ed.) *Drug addiction in youth*. New York: Pergamon, 1965.
31. Hemmings, B., & Miller, R. D. A survey of provincial coroners regarding drug-related deaths in Canada. Unpublished Commission research project. 1971-72.
32. Hine, C. H., & Zuidema, H. H. The toxicological properties of hydrocarbon solvents. *Industrial Medicine and Surgery*, 1970, 39: 215-220.
33. Keeler, M. H. & Reifler, C. B. The occurrence of glue sniffing on a university campus. *Journal of the American College Health Association*, 1967, 16: 69-70.
34. Kerr, N. Ether inebriety. *Journal of the American Medical Association*, 1891, 17: 791-794.
35. Krain, L. S., Bucher, W. H., & Heidebreder, G. A. Dramatic trends in childhood poisonings in Los Angeles county. *Journal of the American Pharmaceutical Association*, 1971, NS 11: 13.
36. Kupperstein, L. R., & Susman, R. M. A bibliography on the inhalation of glue fumes and other toxic vapors—A substance abuse practice among adolescents. *International Journal of the Addictions*, 1968, 3: 177-197.
37. Lal, H., Puri, S. K., & Fuller, G. C. Enhanced toxicity of carbon tetrachloride inhalation after phenobarbital pretreatment. *Pharmacological Research Communications*, 1970, 2: 143.
38. Lal, H., & Shah, H. C. Effect of methylchloroform inhalation on barbiturate hypnosis and hepatic drug metabolism in male mice. *Toxicology and Applied Pharmacology*, 1970, 17: 625.
39. Litt, I. F., & Cohen, M. I. "Danger. . . vapor harmful": Spot-remover sniffing. *New England Journal of Medicine*, 1969, 281: 543-544.

A *The Drugs and Their Effects* — References

40. Lysyk, M. V. Concentrations involved in the inhalation of various glues and nail polish remover solvents. Unpublished manuscript, Manitoba Department of Health and Social Services Environmental Health Laboratory, Winnipeg, 1969.
41. Malcolm, A. J. *On solvent sniffing*. Toronto: Addiction Research Foundation, 1969.
42. Malcolm, A. J., Sereny, G., Weiler, R., Smart, R. G., & Riley, T. G. Psychological and physical aspects of solvent sniffing. Unpublished manuscript, Project F-203, Addiction Research Foundation, Toronto, 1969.
43. Massengale, O. N., Glaser, H. H., LeLievre, R. E., Dodds, J. B., & Klock, M. E. Physical and psychologic factors in glue sniffing. *New England Journal of Medicine*, 1963, 269: 1340-1344.
44. Miller, R. D., & Hemmings, B. Drug-induced poisoning and death in Canada. Unpublished Commission research project, 1973.
45. Musclow, C. E., & Owen, C. F. Glue sniffing: Report of a fatal case. *Canadian Medical Association Journal*, 1971, 104: 315-320.
46. Nagle, D. R. Anesthetic addiction and drunkenness: A contemporary and historical survey. *International Journal of the Addictions*, 1968, 3: 25-39.
47. Parker, G. Glue sniffing. *Criminal Law Quarterly*, 1968-1969, 11: 175-185.
48. Preble, E., & Laury, G. V. Plastic cement: The ten cent hallucinogen. *International Journal of the Addictions*, 1967, 2: 271-281.
49. Press, E., & Done, A. K. Solvent sniffing: Physiologic effects and community control measures for intoxication from the intentional inhalation of organic solvents. *Pediatrics*, 1967, 39: 451-461, & 611-622.
50. Price, H. L., & Dripps, R. D. General anesthetics. III: Intravenous anesthetics. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 93-97.
51. Quintanilla, J. Gasoline sniffing. *Texas Medicine*, 1961, 57: 570-571.
52. Reinhardt, C. F. Azar, A., Maxfield, M. E. Smith, P. E. & Mullin, L. S. Cardiac arrhythmias and aerosol "sniffing". *Archives of Environmental Health*, 1971, 22: 96.
53. Riley, R. E. (Statistics Canada, Mental Health Statistics, Ottawa.) Unpublished information communicated to the Commission, 1972.
54. Rubin, T. Prevention and rehabilitation of solvent inhalation. Paper presented at the Workshop on Glue and Solvent Sniffing. Sponsored by Non-Medical Use of Drugs Directorate, Department of National Health and Welfare, Winnipeg, March 29-30, 1972.
55. Smith, G. F. The investigation of the mental effects of trichlorethylene, *Ergonomics*, 1970, 13: 580-586.
56. Stewart, R. D., Dodd, H. C., Erley, D. S., & Holder, B. B. Diagnosis of solvent poisoning. *Journal of the American Medical Association*, 1965, 193: 1097-1100.
57. Sunshine, I. (Ed.) *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
58. Swinyard, E. A. Noxious gases and vapors. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 930-943.
59. Taylor, G. J., & Harris, W. S. Cardiac toxicity of aerosol propellants. *Journal of the American Medical Association*, 1970, 214: 81-85.
60. Taylor, G. J., & Harris, W. S. Glue sniffing causes heart block in mice. *Science*, 1970, 170: 866.
61. Tolan, E. J., & Lingh, F. A. "Model psychosis" produced by inhalation of gasoline fumes. *American Journal of Psychiatry*, 1964, 120: 757-761.

62. Trieger, N., Loskota, W. J., Jacobs, A. W., & Newman, M. G. Nitrous oxide—A study of physiological and psychomotor effects. *Journal of the American Dental Association*, 1971, 82: 142-150.
63. United States, Department of Health, Education and Welfare. *Inhalation of glue fumes and other substance abuse practices among adolescents*. Washington, D.C.: U.S. Government Printing Office, 1967.
64. Unwin, J. R. Illicit drug use among Canadian youth. *Canadian Medical Association Journal*, 1968, 98: 402-407, & 449-454.
65. Unwin, J. R. Non-medical use of drugs with particular reference to youth. *Canadian Medical Association Journal*, 1970, 103: 864-874. (Position paper included in Canadian Medical Association brief to the Commission, November 7, 1969.)
66. Verhulst, H. L. Glue-sniffing deterrent. *Bulletin of the National Clearinghouse for Poison Control Centers*, November-December, 1969: 4-5.
67. Verhulst, H. L., & Crotty, J. J. Glue sniffing. *Bulletin of the National Clearinghouse for Poison Control Centers*, February-March, 1962.
68. Verhulst, H. L., & Crotty, J. J. Glue sniffing II. *Bulletin of the National Clearinghouse for Poison Control Centers*, July-August, 1964.
69. Villumsen, A. [Teratogenic effects of inhalation anesthetics.] *Nordisk Medicin*, 1970, 83: 775-776.
70. Voegelé, G. E., & Dietze, H. J. Addiction to gasoline smelling in juvenile delinquents. *British Journal of Criminology*, 1963, 4: 43-60.
71. Watkins, L. Ulcers from sniffing gasoline: Use of drugs cited as problem among Nova Scotia Indian children. *Globe and Mail* (Toronto), August 13, 1971: 5.
72. Yanagita, T., Takahashi, S., Ishida, K., & Funamoto, H. Voluntary inhalation of volatile anesthetics and organic solvents by monkeys. *Japanese Journal of Clinical Pharmacology*, 1970, 1: 13-16.

A.10 TOBACCO

1. Abdallah, F. *Can tobacco quality be measured?* New York: Lockwood, 1970.
2. Adams, J. R. Oral habits and traffic accidents: Over-dependency as an explanatory construct. In Alcohol and traffic safety. Unpublished manuscript, Department of Police Administration, Indiana University, Bloomington, Indiana, 1966.
3. Agué, C. Nicotine content of cigarettes and the smoking habit: Their relevance to subjective ratings of preferences in smokers. *Psychopharmacologia*, 1972, 24: 326-330.
4. Akehurst, B. C. *Tobacco*. London: Longmans, Green, 1968.
5. Amit, Z., & Corcoran, M. Tobacco. Unpublished Commission research paper, 1971.
6. Andrews, D. A., Wake, F. R., & MacLean, J. A working document on smoking. Unpublished Commission research paper, 1971.
7. Annis, H. M., Klug, R., & Blackwell, D. Drug use among high school students in Timmins. Unpublished manuscript. Project J-183, Sub-study 1-38 & 39 & B1-71, Addiction Research Foundation, Toronto, 1971.
8. Arntzen, F. I. Some psychological aspects of nicotineism. *American Journal of Psychology*, 1948, 61: 424-425.
9. Aviado, D. M. Ganglionic stimulant and blocking drugs. In J. R. DiPalma (Ed.), *Drill's pharmacology in medicine*. (3rd ed.) Toronto: McGraw-Hill, 1965. Pp. 524-544.

A *The Drugs and Their Effects*—References

10. Baumberger, J. P. The nicotine content of tobacco smoke. *Journal of Pharmacology and Experimental Therapeutics*, 1923, 21: 35-46.
11. Beard, R. R., & Werthein, G. Behavioral impairment associated with small doses of carbon monoxide. *American Journal of Public Health*, 1967, 57: 2012-2022.
12. Blum, R. H., & Associates. *Society and drugs*. San Francisco: Jossey-Bass, 1969.
13. Borgatta, E. F. Some notes on the history of tobacco use. In E. F. Borgatta & R. R. Evans (Eds.), *Smoking, health, and behavior*. Chicago: Aldine, 1968.
14. Borgatta, E. F., & Evans, R. R., (Eds.) *Smoking, health, and behavior*. Chicago: Aldine, 1968.
15. Boyle, M. N., Wegria, R., Cathcart, R. T., Nickerson, J. L., & Levy, R. L. Effects of intravenous injection of nicotine on the circulation. *American Heart Journal*, 1947, 34: 65.
16. Brecher, E. M., & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
17. British Medical Journal. Smoking and vascular disease. *British Medical Journal*, 1972, 2: 3-4.
18. Burn, J. H., Leach, E. H., Rand, M. J., & Thompson, J. W. Peripheral effects of nicotine and acetylcholine resembling those of sympathetic stimulation. *Journal of Physiology*, 1959, 148: 332.
19. Canada, Department of National Health and Welfare. Smoking habits of Canadians, 1964: Report of a survey carried out by the Dominion Bureau of Statistics. Unpublished manuscript, Department of National Health and Welfare Information Services, Ottawa, 1965.
20. Canada, Department of National Health and Welfare. Trends in cigarette consumption, 1920-1970. Unpublished manuscript, Canadian Smoking and Health Program, Ottawa, 1970.
21. Canada, Department of National Health and Welfare, Biostatistics Division. Poison control program statistics. Ottawa, 1969, 1970, 1971.
22. Canada, House of Commons. *Report of the Standing Committee on Health, Welfare and Social Affairs on tobacco and cigarette smoking*. Ottawa: Queen's Printer, 1969.
23. Canada, Statistics Canada. *Tobacco and tobacco products statistics quarterly: March 1972*. Ottawa: Information Canada, 1972.
- 23a. Canada, Statistics Canada. *Exports by Commodities: December, 1971*. Ottawa: Information Canada, 1972.
24. Canadian Tobacco Industry (Ad Hoc Committee). Smoking and Health. Presented to the House of Commons Standing Committee on Health, Welfare and Social Affairs, Ottawa, 1969.
25. Chopra, R. N., & Chopra, G. S. The present position of hemp-drug addiction in India. *Indian Medical Research Memoirs*, July, 1939, Memoir 31.
26. Clarke, E. G. C. (Ed.) *Isolation and identification of drugs*. London: Pharmaceutical, 1969.
27. Colburn, H. N. (Director of Tobacco Program, Department of National Health and Welfare) Unpublished information communicated to the Commission, February 22, 1973.
28. Cook, S. J. Ideology and Canadian narcotics legislation, 1908-1923. Unpublished manuscript, University of Toronto, Toronto, 1964.
29. Corti, C. *A history of smoking*. New York: Harcourt, Brace, 1932.

30. Daniell, H. W. Smokers' wrinkles—A study in the epidemiology of "crow's feet". *Annals of Internal Medicine*, 1971, 75: 873-880.
31. Deneau, G. A., & Inoki, R. Nicotine self-administration in monkeys. *Annals of the New York Academy of Sciences*, 1967, 142: 277-279.
32. Domino, E. F. Electroencephalographic and behavioral arousal effects of small doses of nicotine: A neuropsychopharmacological study. *Annals of the New York Academy of Sciences*, 1967, 142: 216.
33. Eddy, N. B., Halbach, H., Isbell, H., & Seevers, M. H. Drug dependence: Its significance and characteristics. *Bulletin of the World Health Organization*, 1965, 32: 721-733.
34. Ejrup, B. E. V. Report on withdrawal clinics. In H. A. Goodman (Ed.), *World Conference on Smoking and Health: A summary of the proceedings*. New York: American Cancer Society, 1967. Pp. 198-207.
35. Fairholt, F. W. *Tobacco: Its history and associations*. London: Chapman and Hall, 1859.
36. Finnegan, J. K., Larson, P. S., & Haag, H. B. The role of nicotine in the cigarette habit. *Science*, 1945, 102: 94-96.
37. Fletcher, C. M., & Horne, D. Smoking and health. *WHO Chronicle*, 1970, 24: 345-370.
38. Fort, J. (The Center for Solving Special Social and Health Problems, Fort Help, San Francisco) Information communicated to the Commission, 1971.
39. Frith, C. D. The effect of varying nicotine content of cigarettes on human smoking behaviour. *Psychopharmacologia*, 1971, 19: 188-192.
40. Garner, W. W. *The production of tobacco*. Toronto: Blakiston, 1946.
41. Ginzel, K. H. Introduction to the effects of nicotine on the central nervous system. *Annals of the New York Academy of Sciences*, 1967, 142: 101.
42. Glick, S. D., Jarvik, M. E., & Nakamura, R. K. Inhibition by drugs of smoking behaviour in monkeys. *Nature*, 1970, 227: 969.
43. Goldfarb, T. L., Jarvik, M. E., & Glick, S. D. Cigarette nicotine content as a determinant of human smoking behaviour. *Psychopharmacologia*, 1970, 17: 80-93.
44. Goode, E. Cigarette smoking and drug use on a college campus. *International Journal of the Addictions*, 1972, 7: 133-140.
45. Green, M., & Leathers, B. Adult drug users study. Unpublished Commission research project, 1971.
46. Hammond, E. C. World costs of cigarette smoking in disease, disability and death. In H. A. Goodman (Ed.), *World Conference on Smoking and Health: A summary of the proceedings*. New York: American Cancer Society, 1967. Pp. 15-44.
47. Hammond, E. C., & Horn, D. Smoking and death rates—report on forty-four months of follow-up of 187,783 men. II. Death rates by cause. *Journal of the American Medical Association*, 1958, 166: 1294.
48. Heimstra, N. W., Bancroft, N. R., & DeKock, A. R. Effects of smoking upon sustained performance in a simulated driving task. *Annals of the New York Academy of Sciences*, 1967, 14: 295-307.
49. Hunt, W. A. Tobacco: Habit and addiction. In H. A. Goodman (Ed.), *World Conference on Smoking and Health: A summary of the proceedings*. New York: American Cancer Society, 1967. Pp. 140-141.
50. Hunt, W. A., & Matarazzo, J. D. Habit mechanisms in smoking. In W. A. Hunt (Ed.), *Learning mechanisms in smoking*. Chicago: Aldine, 1970. P. 76.
51. Ikard, F. F., Green, D. E., & Horn, D. A scale to differentiate between types of smoking as related to the management of affect. *International Journal of the Addictions*, 1969, 4: 649-659.

52. Indian Hemp Drugs Commission, 1893-1894. *Report on Indian Hemp*. Vol. 1-7. Simla: Government Central Printing Office, 1894. (Primary Volume reprinted Silver Spring, Md.: Thos. Jefferson, 1969).
53. Inglis, A. E. Lysergic acid diethylamide (LSD) and gangrene of the hand. *Review of the Hospital for Special Surgery*, 1972, 1: 22-26.
54. Isaac, P. F., & Rand, M. J. Cigarette smoking and plasma levels of nicotine. *Nature*, 1972, 236: 308-310.
55. Jackson, R. J., & Murphree, H. B. Effects of cigarette smoking on motor and perceptual responses in alcohol-intoxicated men. Unpublished manuscript, Rutgers University, Center of Alcohol Studies, New Brunswick, N.J., 1972.
56. Jaffe, J. H. Drug addiction and drug abuse. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) New York: Macmillan, 1970.
57. [James I]. *A counterblaste to tobacco* (1604). *English Reprints*, 1966, 5: 112.
58. Jarvik, M. E. The pharmacological basis of addiction to tobacco: Nicotine. In H. A. Goodman (Ed.), *World Conference on Smoking and Health: A summary of the proceedings*. New York: American Cancer Society, 1967. P. 142.
59. Jarvik, M. E. Tobacco smoking in monkeys. *Annals of the New York Academy of Sciences*, 1967, 142: 280.
60. Jarvik, M. E., Glick, S. D., & Nakamura, R. K. Inhibition of cigarette smoking by orally administered nicotine. *Clinical Pharmacology and Therapeutics*, 1970, 11: 574-576.
61. Koslowski, W. *The habit of tobacco smoking*. London: Staples, 1955. Cited by B. Holmstedt & O. Wallen, Drug administration by means of cigarettes. *Archives Internationales de Pharmacodynamie et de Thérapie*, 1959, 119: 275-293.
62. Knapp, P. H., Bliss, C. M., & Wells, H. Addictive aspects of heavy cigarette smoking. *American Journal of Psychiatry*, 1963, 119: 966.
63. Larson, P. S., & Silvette, H. *Tobacco—Experimental and clinical studies*. Baltimore; Williams & Wilkins, 1968. P. 270.
64. Laforest, L. La consommation de drogues chez les étudiants du secondaire et du collégial de l'Île de Montréal. Unpublished manuscript, Office de la Prévention et du Traitement de l'Alcoolisme et des Autres Toxicomanies, Québec, 1969.
65. Lanphier, C. M., & Phillips, S. B. The non-medical use of drugs and associated attitudes: A national household survey. Unpublished Commission research project, 1971.
66. Lucchesi, B. R., Schuster, C. R., & Emley, G. S. The role of nicotine as a determinant of cigarette smoking habit frequency in man with observations of certain cardiovascular effects associated with the tobacco alkaloid. *Clinical Pharmacology and Therapeutics*, 1967, 8: 789-796.
67. McArthur, C., Waldron, E., & Dickinson, J. The psychology of smoking. *Journal of Abnormal Psychology*, 1958, 56: 267-275.
68. Miller, R. D. Some principles of psychopharmacology: Implications for the social control of drug abuse: Paper presented at the Sir George Williams Symposium on Drug Abuse, Montreal, February, 1969.
69. Miller, R. D., & Hemmings, B. Drug induced poisonings and deaths in Canada. Unpublished Commission research project, 1973.
70. Murphree, H. B., Pfeiffer, C. C., & Price, L. M. Electroencephalographic changes in man following smoking. *Annals of the New York Academy of Sciences*, 1967, 142: 245.
71. *New York Times*, January 29, 1884. Cited by N. Taylor, *Narcotics: Nature's dangerous gifts*. New York: Dell, 1966. P. 104.

72. *New York Times*, May 23, 1971. Cited by E. M. Brecher, *Licit and illicit drugs*. Boston: Little, Brown, 1972. P. 216.
73. Nichols, J. L. Drug use and highway safety: A review of the literature. Report DOT-HS-012-1-019. Unpublished manuscript, U.S. Department of Transportation, National Highway Traffic Safety Administration, Washington, D.C., July, 1971.
74. Pawan, G. L. S. (Senior Lecturer in Metabolism, Middlesex Hospital, London) Personal communication to the Commission, 1972.
75. Roth, G. M., MacDonald, J. B., & Sheard, C. The effect of smoking cigarettes and of intravenous administration of nicotine on the electrocardiogram, basal metabolic rate, cutaneous temperature, blood pressure and pulse rate of normal persons. *Journal of the American Medical Association*, 1944, 125: 761.
76. Rowell, E. A., & Rowell, R. *On the trail of marihuana, the weed of madness*. Mountain View, Calif.: Pacific, 1939.
77. Royal College of Physicians of London. *Smoking and health now*. London: Pitman, 1971.
78. Russell, J. *Survey of drug use in selected British Columbia schools*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
79. Russell, M. A. H. Cigarette dependence: Part I—Nature and classification, *British Medical Journal*, 1971, 2: 330-331.
80. Schmitterlow, C. G., Hansson, E., Andersson, G., Appelgren, L.-E., & Hoffman, P. C. Distribution of nicotine in the central nervous system. *Annals of the New York Academy of Sciences*, 1967, 142: 2.
81. Schulte, J. H. Effects of mild carbon monoxide intoxication. *Archives of Environmental Health*, 1963, 7: 524-530.
82. Sheard, C. The effects of smoking on the dark adaptation of rods and cones. *Proceedings of Federation of the American Societies of Experimental Biology*, 1946, 5: 94.
83. Silvette, H., Hoff, E. C., Larson, P. S., & Haag, H. B. The action of nicotine on central nervous system function. *Pharmacological Reviews*, 1962, 14: 137.
84. Smart, R. G., Fejer, D., & Alexander, E. Drug use among high school students and their parents in Lincoln and Welland Counties. In P. H. Blachly (Ed.), *Progress in drug abuse*. Springfield, Ill.: C. C. Thomas, 1972. Pp. 62-103.
85. Smart, R. G., Fejer, D., & White, J. Drug use trends among metropolitan Toronto students: A study of changes from 1968 to 1972. Unpublished manuscript, Project J-183, Sub-study 512, Addiction Research Foundation, Toronto, 1972.
86. Smart, R. G., Fejer, D., & White, J. The extent of drug use in metropolitan Toronto schools: A study of changes from 1968 to 1970. *Addictions*, 1971, 18: 3-19.
87. Stedman, R. L. Nicotine reduction in tobacco and tobacco smoke: Toward a less harmful cigarette. Monograph 28, National Cancer Institute, U.S. Department of Health, Education and Welfare, Washington, D.C., 1968.
88. Stevenson, G. H., Lingley, L. R. A., Trasov, G. E., & Stansfield, H. Drug addiction in British Columbia. Unpublished manuscript, University of British Columbia, Vancouver, 1956.
89. Sunshine, I. (Ed.) *Handbook of analytical toxicology*. Cleveland, Ohio: Chemical Rubber Publishing, 1969.
90. Tait, L. *Tobacco in Canada*. Tillsonburg, Ontario: Ontario Flue-Cured Tobacco Growers' Marketing Board, 1968.
91. Taylor, N. *Narcotics: Nature's dangerous gifts*. New York: Dell, 1966.
92. Ulett, J. A., & Itil, T. M. Quantitative electroencephalogram in smoking and smoking deprivation. *Science*, 1969, 164: 969-970.

93. United Press International. 38% want ban on cigarettes U.S. poll shows. *Toronto Star*, April 7, 1971: 2.
94. United States, Department of Health, Education and Welfare, Public Health Service. *The health consequences of smoking*. (A report of the Surgeon General) Washington, D.C.: U.S. Government Printing Office, 1969. (1969 Supplement to the 1967 Public Health Service Review)
95. United States, Department of Health, Education and Welfare, Public Health Service. *The health consequences of smoking*. (A report of the Surgeon General: 1971) Washington, D.C.: U.S. Government Printing Office, 1971.
96. United States, Department of Health, Education and Welfare, Public Health Service. *The health consequences of smoking*. (A report of the Surgeon General: 1972) Washington, D.C.: U.S. Government Printing Office, 1972.
97. Volle, R. L., & Koelle, G. B. Ganglionic stimulating and blocking agents. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) New York: Macmillan, 1970. Pp. 585-600.
98. Waller, J. A., & Thomas, K. Carbon monoxide, smoking, and fatal highway crashes. Paper presented at the Fifteenth Conference of the American Association for Automotive Medicine, Colorado Springs, Colorado, October, 1971.
99. Whitehead, P. C. Head or brain? Drug use and academic performance. Unpublished manuscript, Department of Sociology, Dalhousie University, Halifax, 1969.
100. Wynder, E. L. *The biologic effects of tobacco*. Boston: Little, Brown, 1955.
101. Wynder, E. L., & Hoffman, D. *Tobacco and tobacco smoke*. New York: Academic, 1967.
102. Van Duuren, B. L., & Schmitt, F. L. Isolation and identification of some components of cigarette smoke condensate. *Journal of Organic Chemistry*, 1958, 23: 473.

Legal and Illegal Sources and Distribution of Drugs

B.1 INTRODUCTION

An understanding of the mechanisms and channels by which psychotropic substances reach their ultimate consumers is essential to developing a comprehensive perception of drug use in Canada. The availability of drugs is a crucial factor in explaining the extent and patterns of Canadian drug use, and this availability is a function of the various processes whereby drugs are licitly and illicitly distributed. For descriptive purposes, our discussion of these distribution processes is divided into drug types and, within each drug classification, by three major rubrics: 1) legal sources and legal distribution, 2) legal sources and illegal distribution, and 3) illegal sources and illegal distribution.

The legal distribution of drugs in Canada is governed by a complex mosaic of federal and provincial statutes and regulations. These laws are described in some detail in the following drug-by-drug discussions, but it is useful to mention them here so as to provide an outline of the legal parameters of the distribution system.

The production, distribution and administration of the opiate narcotic drugs, cannabis and cocaine are governed by the *Narcotic Control Act* and the *Narcotic Control Regulations*. The distribution of all other drugs requiring prescriptions—and many which do not—is controlled by the *Food and Drugs Act* and its *Regulations*; this Act also prohibits the distribution of certain psychotropic substances (such as most hallucinogens) except for scientific purposes. Drugs which are considered secret formula, non-pharmacopoeial medicines (such as some cough medicines and laxatives) are regulated by the *Proprietary or Patent Medicine Act* and various provincial regulations. Alcohol and tobacco manufacture and importation are regulated by the *Excise Act* federally, and by various provincial statutes as regards provincial distribution and taxation. Apart from packaging and labelling requirements, there is no significant controlling legislation on the distribution of volatile solvents and gases.

The illegal distribution of psychotropic substances may involve legally produced drugs which have been diverted from their licit channels, or illegally imported or manufactured drugs. In either case, some violation of at least one of the above-mentioned statutes will have occurred. Illegal drug distribution is often as highly sophisticated and complex an economic activity as the licit pharmaceutical industry itself. This illegal enterprise can generally be divided into three major marketing levels. The top level is composed of a very small number of 'manufacturers' (as is the case with 'speed' and most hallucinogens) and 'importers' (such as with heroin and cannabis). These individuals sell their drugs to 'distributors', who are essentially wholesale agents who buy in large quantities and sell in smaller lots to the third illicit distribution level: 'dealers'. It is the dealers who sell the bulk of illegal drugs to their ultimate consumers. It should be recognized, however, that each of these levels may have many sub-levels, and that these different distribution roles may, on occasion, be performed by the same person, especially when the quantities involved are relatively small. Finally, it should be noted that these three levels of illicit distribution reflect a hierarchical structuring with certain crucial properties: the greatest profits accrue to those at the top of the hierarchy; the greatest risks of arrest are at the bottom of the hierarchy; and, consequently, most of those involved in illicit trafficking are motivated to improve their position in the distribution structure.

B.2 OPIATE NARCOTICS

LEGAL SOURCES AND LEGAL DISTRIBUTION

Canada has not permitted either the manufacture or importation of heroin since January 1, 1955, although legal supplies still exist in a few hospitals, pharmacies and private clinics. Significant quantities of other opiate narcotics in wide use for medical purposes are imported into this country. The uses to which these substances are applied are described in Appendix A.2 *Opiate Narcotics and Their Effects*. The procedures by which the distribution of these drugs are controlled are specified in the *Narcotic Control Act* and the *Narcotic Control Regulations*. All prescription sales must be recorded. Codeine phosphate at low dose levels, however, may be sold without a prescription and sales need not be recorded provided that preparations containing this drug meet certain rigid provisions described in the *Narcotic Control Regulations*. Records of all opiate narcotics transactions and all opiate narcotics stocks in the possession of licensed distributors, doctors, hospitals and pharmacists must be open to Department of National Health and Welfare inspection, and all thefts from these parties must be reported to the Bureau of Dangerous Drugs.

Table B.1 indicates the estimated consumption of the major opiate narcotics legally distributed in Canada between 1966 and 1971. Of special

interest is the almost ten-fold increase in the consumption of methadone during this period. This drug is used almost entirely for purposes of methadone maintenance or the treatment of heroin withdrawal. Reported diversion of methadone into the illicit market (see "Legal Sources and Illegal Distribution", below) and concern over the misuse of this drug led to a governmental decision to restrict the right to prescribe methadone solely to those "physicians . . . authorized to do so by the Minister of National Health and Welfare."³⁷ These more rigorous restrictions came into effect on June 1, 1972. At that time prescribing authorization was temporarily limited to about 800 practitioners. These temporary authorizations expired on October 31, 1972, and prescribing authorization renewals were issued effective November 1, 1972. At the end of November 1972, approximately 455 practitioners were authorized to use methadone, including eight veterinaries.

At present, a licensed medical practitioner may receive authorization to use methadone for the treatment of narcotic addicts, for the management of narcotic withdrawal, as an analgesic or anti-tussive agent in non-addicted persons, or for veterinary purposes. Over 70 per cent of the practitioners with the right to prescribe methadone as of the end of November 1972 were granted authorizations solely for the treatment of opiate narcotics addiction or withdrawal. The specific details of these authorization restrictions and their consequences are discussed in Appendix G.1 *Methadone Control Program of the Government of Canada*.

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

Although the controls on the availability of opiate narcotics for legitimate medical purposes outlined above are quite rigorous, there is, nevertheless, some diversion of these drugs into the illicit market. The major forms of diversion include thefts from pharmacies, doctors (offices and bags), hospitals and licensed distributors, pilferage from warehouse stocks, obtaining prescriptions from a number of doctors, forging prescriptions, deceiving doctors by simulating withdrawal symptoms, and the overprescribing of opiate narcotics by a few doctors.^{34, 56, 58, 106}

Apart from methadone, it appears that thefts are the major form of diversion and that these thefts generally net only small amounts of drugs.^{33, 106} In the case of methadone, however, almost five times as much methadone seized by law enforcement officers was destroyed in 1971 (777 grams) as was reported stolen (157 grams) in that year.^{35, 106} As there is no evidence of the illicit manufacture of methadone in Canada, nor of significant quantities of methadone being illicitly imported into this country, it is safe to assume that there was some misprescribing of methadone by doctors before the new methadone regulations of June 1, 1972. In fact, indications of overprescribing had been received prior to this date by the Department of National Health and Welfare^{20, 37, 57} and the Commission's own monitoring studies of drug use patterns in selected urban centres.^{56, 58}

TABLE B.1
ESTIMATED CONSUMPTION OF LICIT OPIATE NARCOTICS
For 1966-1971* (in Kilograms)

Drug	1966	1967	1968	1969	1970	1971
Opium Preparations.....	165.283	139.457	213.480	166.645	154.976	96.038
Morphine.....	26.214	36.924	20.237	34.278	31.094	38.513
Hydrocodone.....	48.699	54.482	62.410	64.622	83.508	110.862
Hydromorphone.....	0.279	0.218	0.310	0.654	0.456	0.545
Oxycodone.....	13.024	16.247	23.874	22.688	26.232	38.514
Codeine.....	4,242.347	4,098.112	4,363.513	5,045.441	4,977.868	4,315.817
Ethylmorphine.....	17.390	15.491	17.751	12.869	14.223	12.185
Anileridine.....	30.669	32.154	41.686	42.500	44.215	49.912
Alphaprodine.....	3.048	6.466	0.856	3.177	2.827	2.695
Levorphanol.....	0.358	0.312	0.168	0.739	0.012	0.241
Methadone.....	4.353	6.216	9.417	13.053	20.967	40.158
Pethidine (Meperidine).....	723.090	806.389	709.910	844.062	950.212	792.259

Source: Canada, Bureau of Dangerous Drugs. Table showing estimated consumption of the main narcotics for the period 1961-1971 inclusive, April 5, 1972. (Mimeo).

* Estimated Consumption in year B = Manufacturers' stocks on December 31 of year A + Imports during year B - (Exports during year B + Manufacturers' stocks on December 31 of year B).

The effect of the June 1 regulations on the diversion of methadone to the illicit market cannot be fully ascertained at this time. There is reason to believe, however, that the extent of such diversion has been significantly reduced.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

INTERNATIONAL PATTERNS OF ILLEGAL DISTRIBUTION

The international trade in illicit narcotics is a complex phenomenon affecting both producing and consuming nations. However, the illicit trade is not universally perceived as a problem by the scores of nations involved as illicit producers, processors, shippers, or consumers. In several countries the illicit trade is an almost regular and traditional source of income for members of the government. Many of the producing nations simply lack the political power and financial resources to eradicate illicit cultivation, while other governments—often for political reasons—hesitate to deprive their already impoverished farmers of their major cash crop. However, one must also consider the inability of the consuming nations to curb illicit demand, successfully treat or control their user and addict populations, or control illegal distribution.

Although there are likely tens of thousands of illicit producers and approximately two and one-half million illicit consumers world-wide, most of the international illicit distribution system is controlled at the top by a relatively small number of professional criminal syndicates of primarily French-Corsican, Italian-Sicilian and Chinese backgrounds. Each syndicate is an independent, autonomous entity with virtually identical structures and styles of organization. They wield considerable power because of their wealth and their widespread corruptive influence on individual police, customs and government officials. These syndicates are specifically and effectively organized to minimize risks (especially for their senior persons), and do not hesitate to utilize the full measure of both legal and illegal means to protect their interests and evade prosecution. The illicit distribution system is extremely flexible; the closure of one opium source is usually followed by the spawning of another, as the trade shifts to the areas of least resistance.

The present international regulations regarding opium production and trade are embodied in the 1961 *Single Convention on Narcotics Drugs*. The *Single Convention* does not prohibit internal cultivation, production or consumption of opium, but it does establish certain obligations to diminish the possibility of overproduction and diversion to illicit market. Among other obligations, the signatories to the Convention must ensure that all aspects of their opium cultivation and trade relate exclusively to medicinal or scientific purposes.¹⁷² The enforcement provisions under the Convention are based on the force of world opinion. The official regulatory body has neither means nor power to physically interrupt illicit traffic, but must rely upon the

diligence and honesty of domestic law enforcement agencies or mutual co-operation between nations.

OPIUM CULTIVATION, PRODUCTION AND CONSUMPTION: LICIT AND ILLICIT.

Poppy Cultivation

Opium is the hardened gum derived from the milky sap of the poppy plant (*papaver somniferum*). It is the proportion of morphine alkaloid in the opium that determines its commercial value. The plant grows in a variety of soils and requires a warm, fairly dry climate. The mountain valleys from the Turkish Anatolian Plain to the Yunnan Province in China are the sources of most of the world's opium.¹⁸¹ However, many other areas are entirely suitable for opium poppy cultivation.

The cultivation and especially the harvesting require tremendous amounts of labour. It takes between 175 and 250 hours of manual labour to produce one kilogram (2.2 pounds) of opium.¹⁸¹ The poppy acreage per farm is directly limited to the quantity that can be manually harvested during one day as each of the five to twenty pods per opium plant must be lanced and scraped to collect the opium gum within a 24-hour interval.¹⁸² Mechanical harvesting is possible but would require "sizeable capital outlays and . . . concentrated area of cultivation" which would be far too visible for illicit production.¹⁸² Because of the tremendous amount of labour involved, poppies tend to be raised only where labour is abundant and cheap; annual per capita incomes range from \$350 in Turkey to less than \$100 in India and South-east Asia.¹⁸² Where there exist abundant opportunities for comparable legal income, opium is rarely produced. For example, in Yugoslavia licit annual production gradually fell from eighty tons to three tons as the per capita income rose in the primary producing province of Macedonia.¹⁷³

Poppy cultivation usually represents a small fraction of total cropped land; in Turkey, Iran, Pakistan, Afghanistan and India it rarely exceeds one hectare (2.47 acres) per farm.¹⁸¹ The majority of the land is used for growing food for the farmers' needs. By contrast, in Southeast Asia poppy growing accounts for a far larger share of the cultivated land and is therefore more vital to the local farm economy.¹⁸¹

Yields, Purity, Prices and Economic Significance

Regional yields per unit of land vary considerably: from twenty kilograms per hectare in India to eight to ten kilograms per hectare in the opium growing areas of Burma, Laos and Thailand.¹⁸¹ Turkish opium yields of 15 to 16 kilograms per hectare are comparable to Indian opium yields because the latter are adulterated and hence yield less morphine alkaloid. In addition, the yield per farm within each region may vary due to the quality of the seeds, the amount of weeding, fertilizer and irrigation, the timing of the harvest, and other factors.¹⁸¹ Opium cultivation is extremely risky. An entire

crop might fail,¹⁰⁸ and rain during harvest may leach out the morphine alkaloid.¹⁸¹ The widespread variation in possible yields makes it extremely difficult for a legal government opium monopoly to prevent diversion to the illicit market. The farmer may understate his output by as much as 25 per cent and still be well within the wide range of possible yields.

The morphine content of the opium defines its purity and value.¹⁸¹ Although the estimates of purity vary, it is generally conceded that Turkish opium (with a morphine content of between nine and fifteen per cent) is the world's most potent.^{108, 181} The opium produced in other countries has a morphine content ranging from 4 to 12 per cent.

Generally speaking, the price of opium decreases from Turkey east to Southeast Asia.¹⁸¹ The opium farmer's returns for his hundreds of hours of labour are extremely meagre by North American standards. For example, the Turkish opium farmer in 1971 would have realized only about five cents per hour on the legal opium market or fourteen cents per hour for illicit sales.^{31, 182} Table B.2 indicates the range of opium prices on the international licit and illicit markets in 1971.

TABLE B.2

PRICES TO FARMERS FOR RAW OPIUM—1971

Producing Country	U.S. \$ per Kilogram
Turkey	
Licit.....	10.00
Illicit.....	25.00 to 33.00
Iran	
Licit.....	65.00
Afghanistan	
Illicit.....	10.00 to 12.00
Pakistan	
Licit.....	8.00
Illicit.....	24.00 to 32.00
India	
Licit.....	4.67 to 9.33
Illicit.....	14.00 to 28.00
Burma/Thailand/Laos	
Illicit*.....	20.00

Source: United States, Cabinet Committee on International Narcotics Control. *World Opium Survey* 1972. Washington, D.C.: July 1972.

* The Laotian prohibition on cultivation did not come into force until November 15, 1971. See below: Laos.

The economics of opium cultivation at the farm level is a crucial factor affecting international efforts to suppress the illicit opium trade. In large part, the suppression of this trade is dependent upon replacing present opium

cultivation with alternate crops of equal or greater value per unit of land. Although other crops yield more per hour of labour, no legal substitutable crop provides comparable economic yields per hectare (see Table B.3 below), and in the opium producing countries labour is cheap and land is expensive.¹⁸¹

TABLE B.3
GROSS RETURNS FOR OPIUM AND CROP SUBSTITUTES
PER HECTARE IN TURKEY—1971

	US \$
Opium.....	387-488
Wheat.....	70
Barley.....	65
Sunflower.....	140
Alfalfa.....	174
Sugar Beets.....	341

Source: United States, Cabinet Committee on International Narcotics Control. *World Opium Survey* 1972. Washington, D.C.: July 1972.

The economic, social and political problems of undertaking crop substitution in the western opium-producing nations are less complicated than those in Southeast Asia where opium represents a far greater percentage of total cropped land.^{158, 181} Furthermore, governments in Southeast Asia lack the resources to enforce their narcotics laws in the remote areas in which opium is cultivated as government officials have little effective contact with these regions.¹⁷³ Widespread personal use of opium among its growers in Southeast Asia increases the problems of crop substitution and the suppression of opium production.

Licit Production and Uses

The United States Cabinet Committee on International Narcotics Control estimated that approximately 1,500 metric tons of opium were produced in 1971 for the world's licit market.¹⁸² Higher production levels in India and the resumption of large scale cultivation in Iran increased the 1971 licit supply by 25 per cent. India produced 62 per cent of the licit total, the U.S.S.R. produced about 13 per cent, and Iran and Turkey each accounted for about 10 per cent. The People's Republic of China, Pakistan, Japan, Yugoslavia and North Vietnam accounted for the remainder of the licit production. The processing of poppy straw (the pods and upper parts of the stems), which is the alternative to raw opium as a source of morphine, has increased over the past decade and presently accounts for 35 per cent of licit morphine production.¹⁸²

A relatively small quantity of licit opium production is used to provide maintenance doses of opium for registered addicts in the government treat-

ment programs of Iran, Pakistan and India.¹⁸² However, 90 per cent of the licit supply is converted to morphine, and 95 per cent of this morphine is used to produce other substances, chiefly codeine.¹⁸² Although some synthetic alternates are available, no completely satisfactory substitutes for codeine have yet been found.^{99, 169, 182}

Illicit Production and Consumption

The American Cabinet Committee has estimated the 1971 world illicit opium production at between 990 and 1,210 metric tons (see Table B.4).¹⁸² Burma, Laos and Thailand accounted for 63 per cent, India, Afghanistan and Pakistan each accounted for about nine per cent, and Turkey supplied five per cent of this total. The remaining five per cent was primarily produced in Eastern Europe and Mexico with additional scattered cultivation in Latin and South America, North Africa and the Far East.^{32, 182} The United States Bureau of Narcotics and Dangerous Drugs (B.N.D.D.) has stated that illicit production in the People's Republic of China, U.S.S.R., Eastern Bloc nations and North Vietnam is insignificant.¹⁸¹ Substantial increases were expected in the 1972 illicit supply due to bumper crops in Burma, Laos and Thailand.³²

TABLE B.4

ESTIMATED ILLICIT OPIUM OUTPUT, BY MAJOR PRODUCERS—1971

Country	Metric Tons
India.....	100
Afghanistan.....	100
Turkey.....	35- 80
Pakistan.....	20-160
Burma, Thailand, and Laos.....	700
Mexico.....	10-20
Other*.....	20-50
Total.....	990-1,210†

Source: United States, Cabinet Committee on International Narcotics Control. *World Opium Survey* 1972. Washington, D.C.: July 1972.

* Mainly Eastern Europe.

† Additional amounts probably are produced in Latin America, North Africa, and the Far East.

Most of the illicit opium is consumed by users within or close to the areas of cultivation. Southeast Asia—representing the largest consuming population—absorbed 600 of the 700 tons produced in Burma, Laos and Thailand in 1971.¹⁸² However, the American Cabinet Committee estimated that a minimum of 200 tons of the 1971 illicit world-wide opium supply and substantial illicit stocks from previous years were available for the international heroin market, which is primarily composed of about 575,000 North

American heroin dependents.¹⁸² These addicts consume over 11 metric tons of pure heroin annually. In terms of opium equivalents, the North American market thus requires 110 metric tons of raw opium, or ten per cent of the 1971 illicit supply. This market is probably the world's most lucrative as heroin is far easier to import and far more profitable to distribute than any other form of narcotic. Furthermore, North American heroin addicts and users are able to pay far higher prices than their more impoverished counterparts in Europe and Southeast Asia.

THE INTERNATIONAL DISTRIBUTION OF ILLICIT NARCOTICS:
A HISTORY SINCE 1940

Since World War II, the illicit demand for opiates has increased substantially in most countries that have experienced serious narcotics problems in the past, with the exception of the People's Republic of China and Iran.¹⁸¹ Prior to 1940 Mainland China was the largest illicit market for opium products, several times larger than the rest of the world combined.¹⁸¹ At the beginning of World War II China had an estimated opium-smoking population of ten million, concentrated in the larger urban centres on the Pacific Coast.¹⁸¹ This vast market was primarily supplied by India and Iran, the two largest illicit producers at the time, with smaller quantities from Egypt, Pakistan and French Indo-China.*¹⁸¹ In addition, prepared smoking opium and other opiates shipped from China supplied the large Chinese using population in Southeast Asia and North America until the beginning of World War II when the Pacific shipping lines were cut, temporarily ending the major role played by the Chinese in North American opiate distribution.³⁸

The vast illicit market in China largely disappeared when the People's Republic of China was formed in 1949, and thus the international trade in illicit narcotics changed as the world demand for opium drastically declined.¹⁸¹ The Chinese criminal syndicates that had controlled the trade in Mainland China resettled in Hong Kong and other parts of Southeast Asia, and apparently maintained their contacts with the Chinese syndicates in North America.³² Following closure of the Chinese market, Iran became one of the leading producers and exporters of illicit opium; well over one-half of Iran's licit opium crop was diverted to its domestic black market, the Southeast Asian market and the small but growing demands of the North American market. The illicit trade in Western Europe became increasingly important when Italy banned legal heroin production in the early 1950s—Italy having been the major source of supply for the North American east-coast addict population. During this period Turkey developed as a significant opium producer. Turkish opium, diverted from legal production, was transported directly, or through Syria and Lebanon, to France and Italy for refinement into heroin.¹⁸¹

* French Indo-China encompassed what is now Laos, Vietnam and Cambodia. The Geneva Agreements of 1954 established these countries as independent nations.

Iran, with an addict population of about one and one-half million, banned all opium cultivation in 1955, thus creating a shortage in Southeast Asia, the Middle East and Western Europe.* The United States B.N.D.D. has indicated:

In order to meet demand in Iran, illicit production rose sharply in both Afghanistan-Pakistan and Turkey. After the elimination of supplies from China and Iran to the Far East and Southeast Asia, production also rose substantially in Burma, Laos, and Thailand. In addition, with the elimination of Iran's formerly westward-moving illicit exports, Turkey largely filled the gap by increasing its exports to the Arab countries, Western Europe, and North America.¹⁸¹

Southeast Asian opium production increased prior to and after the Iranian opium prohibition. Alfred McCoy has reported that the Kuo Min Tang (K.M.T.) in Burma,† General Phao Sriyanonda in Thailand,‡ and the intelligence arm of the French Colonial Government in Indo-China (Service de Documentation Extérieure et du Contre-Espionage or SDECE) discreetly encouraged expansion of Southeast Asian opium cultivation following World War II.¹⁰⁵ After the 1954 Geneva Agreements and the French withdrawal from Southeast Asia, elements of the newly founded national governments of Laos and South Vietnam and the American Central Intelligence Agency (C.I.A.) began to play a role in the Southeast Asian opium trade. During the 1950s and 1960s, members of the French-Corsican criminal syndicates of Saigon shipped Southeast Asian morphine base to the French-Corsican heroin refineries of Marseilles.¹⁰⁵

Following the 1955 Iranian prohibition, Turkey became the most significant source of illicit opium for the heroin refineries of Southern France and those few that existed in Italy.¹⁸¹ As the number of Turkish hectares under opium production declined during the 1960s, the percentage illegally diverted increased and thus the quantity reaching the illicit market remained unchanged.¹⁸¹ It was not until the United States threatened to cut back foreign aid and favourable trade agreements in the late 1960s that the Turkish Government initiated rigorous programs to reduce its illicit cultivation and trade.¹⁵⁶ The reduction in the number of opium-growing provinces, the strengthening of the licensing system, closer supervision of opium farmers, an increase in the government price for licit opium, and the development of a large narcotics enforcement branch substantially decreased the quantity of opium reaching the illicit market.³¹ On June 30, 1971 the Turkish Government announced it would ban all opium poppy cultivation as of autumn 1972.¹⁶⁸ Several months later the United States pledged \$35 million

* Iran's narcotics-using population decreased significantly during this prohibition; the 1971 addict population was roughly estimated to be 400,000 persons. Licit opium production was resumed in 1969.¹⁸²

† See below, "Burma".

‡ See below, "Thailand".

to support bilaterally developed agricultural and financial programs to ease the economic hardships resulting from the Turkish ban.¹⁸²

There is significant public opposition to the opium prohibition in Turkey which is linked, to some extent, to growing anti-American sentiment; Istanbul's major newspaper *Hürriyet* has protested United States interference in the internal affairs of Turkey, and the opposition party in the Turkish Parliament has introduced two bills to repeal the opium poppy ban.¹⁶³ Even if the cultivation prohibition is maintained, as is expected,³² the huge supply of opium illicitly stockpiled by Turkish farmers will temporarily ease the shortage caused by the ban.^{109, 182}

Since World War II, three distinct areas of illicit production and refinement have supplied the North American heroin market: The Middle East, Southeast Asia and Mexico.^{31, 181} Until the late 1960s, the Middle East accounted for up to 80 per cent of this supply.¹⁸¹ However, the Turkish opium production ban has already caused major changes in the international distribution system and is likely to precipitate other changes in the near future.^{105, 181, 182} Some sources suggest that Southeast Asian heroin may soon dominate the North American market.^{32, 105} The opium-producing complex of Iran, Afghanistan, India and Pakistan, which accounted for over 25 per cent of the world-wide 1971 illicit supply, may for the first time play a role in supplying the North American market.³²

According to Interpol officials, at best only five to ten per cent of all illicit narcotics are seized before they reach their destination.¹⁷³

THE MIDDLE EASTERN NARCOTICS TRADE

Control of Refinement and Demand: A Brief History

The illicit flow of raw opium and morphine base from the Middle East to the criminal syndicates of Western Europe has persisted relatively uninterrupted since the end of World War II. The traders and smugglers of Beirut and Istanbul have long dominated the collection of illicit raw opium, its processing into morphine base, and sale of the base to European syndicates.⁹⁹ The most significant changes in the Middle Eastern market involve the roles of the Italian-Sicilian syndicates (hereinafter referred to as the 'Mafia'*) and the French-Corsican syndicates in the refinement of morphine base into heroin. These syndicates are strikingly similar in structure and organization: both are organized along family lines with a strong sense of loyalty and strictly enforced codes against betrayal. In addition, both groups have developed extensive financial, criminal and political power, extending their influence far beyond their native island or country.

* There are at least three groups of criminal syndicates which trace their origins back to Italy and Sicily: the Neapolitans, the Calabrians, and the Sicilians. Although these three groups draw distinctions among themselves, for our purposes they will be collectively referred to as the 'Mafia'.

By the end of World War II, the 'Mafia, due largely to the organizational skill of Salvatore (Lucky) Luciano, controlled most American organized crime, including narcotics.⁹⁹ In 1936 Luciano was given a 30- to 50-year sentence for 62 counts of compulsory prostitution, but was granted an early parole, for encouraging American east-coast dockworkers to fight German sabotage, and was then deported to Sicily.⁵³ Even after his 1946 deportation Luciano remained a dominant force in North American organized crime, and his heroin distribution network in the United States was inherited by other mafiosi.³¹

The French-Corsicans' involvement in international organized crime was even more extensive than the Mafia's. Following the Second World War the French-Corsican syndicates gained control of the Marseilles docks^{24, 27, 105} and, shortly thereafter, opened the first illicit heroin laboratories in the Marseilles area.²⁸ This area has remained the largest centre of illicit refinement for heroin entering the North American market.^{31, 32}

French-Corsican syndicates also controlled a major part of organized criminal activities in French Indo-China¹⁰⁵ and Lebanon, a former French protectorate and the centre of the Middle East narcotics trade.⁵⁹ In addition, the French-Corsicans had established connections in Montreal, Buenos Aires, Rio de Janeiro, Mexico City, and pre-Castro Havana, thus linking them to the South American cocaine market.^{99, 163} The various French-Corsican syndicates and their associates were involved in almost every major illicit narcotics market, with one exception: North America, which was controlled by the Mafia.

Seven months after his deportation to Sicily, Luciano was reported to be in Cuba in the company of several American Mafia leaders.^{8, 192} The American Government brought pressure to bear on Cuba, and Luciano was forced to leave, resettling in Italy. However, pre-Castro Cuba developed into a major trans-shipment centre for heroin destined to North America from Europe and cocaine destined to Europe and the United States from South America.¹⁴⁴

Heroin production was legal in Italy at this time and Luciano made arrangements with the managers of some Italian pharmaceutical companies to divert portions of their legal narcotics supplies into the illicit heroin market. Although the Italian authorities were notified of these companies' involvement in 1950, no action was taken until January 1953 when these managers were finally arrested and eventually imprisoned.^{99, 121, 192} Luciano, however, was not prosecuted, "... the Italian authorities claiming that there was not sufficient evidence against him to warrant a charge."¹²¹ This affair precipitated a strong reaction in the United Nations Commission on Narcotic Drugs and eventually led to Italy banning all heroin production.¹⁹² As the Italian sources closed down, Luciano turned to the French-Corsican syndicates of Marseilles for pure heroin and to the Middle East for morphine base. The Mafia developed two concurrent systems for heroin importation into North America; they operated their own heroin conversion laboratories in Sicily,

shipping the pure bulk heroin to North America via unsuspecting Italian immigrants. The second system was supplied by the French-Corsican heroin conversion laboratories of Marseilles; Corsican seamen smuggled the heroin into North America aboard regular commercial vessels. In both cases New York was the primary port of entry.^{99, 121, 144}

In April 1957, 20 kilos of heroin destined for New York were seized from the S.S. *Excambion* in Marseilles harbour.¹⁴⁴ This seizure of heroin was not as significant as the prosecutions that eventually arose from the case. Although the exact sequence is unclear, Vito Genovese and 14 of his Mafia associates were eventually arrested and charged with conspiracy to import heroin.⁷

In November 1957, more than a hundred Mafia chiefs and lieutenants met at Appalachin, New York. Among the major issues to be considered was a decision of the Mafia bosses to abandon the heroin business due to rising police pressure and increasing risks of prosecution.^{31, 100} The meeting was interrupted by the police before this topic could be discussed, but the narcotics trafficking prohibition was later revised to allow Mafia members to retain control of heroin importing and primary distribution as long as they did not endanger the non-drug enterprises of other Mafiosi.³¹ Within three years, however, another fifty leading members of the Mafia were arrested in two other major heroin conspiracy cases.^{7, 59, 99}

The Mafia's role in international heroin distribution was substantially altered by the 1957 Appalachin edict and these three conspiracy cases. The Mafia maintained control over North American demand but abandoned heroin refinement and the actual smuggling into North America.⁵⁹ By the beginning of the 1960s the French-Corsican syndicates controlled virtually all heroin conversion in the Middle East and Europe.

Deterioration in the relations between the French-Corsicans controlling supply and the Mafia controlling demand, coupled with the increasing sophistication of New York customs and narcotics agents, resulted in a diversification of importation routes into North America in the early 1960s. Montreal was the most important alternate route during this period because of its proximity to the huge New York heroin market. In addition, the Montreal syndicates proved more trustworthy than the New York Mafiosi, and law enforcement was not as vigorous.⁵⁹ During the early 1960s the French-Corsicans still did most of their own importing but, with increasing police pressure, prosecutions and seizures, they were forced to specialize. They left the smuggling of heroin to their clients, hired independent couriers, and relied more heavily on primarily French-Corsican contacts in South America, Latin America, Montreal, Miami, New York, Spain and Italy to import the heroin for them.³¹ As the number of connections increased, the trade became more diverse and new routes and distribution patterns developed. However, the French-Corsicans remained by far the major supplier, and the Mafia on the American east coast remained their largest buyer.^{31, 146}

The Supply, Logistics and Processing of Opium in the Middle East and Western Europe

From the farmer to the smuggler. According to the American B.N.D.D., Turkey was the source of opium for 80 per cent of the heroin consumed in Western Europe and North America following Iran's prohibition of opium production in 1955.¹⁸¹ This figure was probably accurate up until six or seven years ago, before the reduction in Turkish opium production and the expansion of the Southeast Asian trade. Under the pre-1972 Turkish licensing system, the farmer's opium acreage was not limited providing he lived within an authorized opium-producing province.¹⁰⁸ At the beginning of each growing season Turkish farmers reported their poppy acreage and expected yields to the regional government opium monopoly, but since the planting and harvesting were not supervised the farmers simply underestimated their actual acreage or expected yields. The excess was sold to "commission men"—agents touring the producing area purchasing opium for illicit dealers. It may take two or three years before the 1972 ban on Turkish opium cultivation markedly reduces illicit shipments to Western Europe; Turkish and American narcotics officials attribute this potential delay to existing illicit stockpiles and possible clandestine cultivation.⁸⁸

The collection and refinement of the opium, and the transportation of the morphine base, are the responsibilities of hundreds of professional smugglers.⁹⁹ The entire illicit opium industry in the Middle East is viewed as a profession, and corruption of public officials, smuggling and violence are an inevitable part of this enterprise.¹⁰⁸ Once the morphine base is delivered to Istanbul or one of the other Turkish collection centres, it is transferred to the smuggler's agent for safekeeping until final arrangements are made with larger dealers.

From the Middle East to the European refining laboratories. Middlemen in Germany, Italy and other Western European countries control much of the movement of morphine base from Turkey to France. These middlemen have developed their own connections in the Middle East and act either as forwarding agents for the French buyers or as independent suppliers.¹⁸² Independent entrepreneurs attempting to buy morphine base in the Middle East or sell it in Western Europe generally lack the contacts to survive.

Traditionally the morphine base was smuggled by ship into Marseilles, but recently the use of overland routes from Turkey through Bulgaria and Yugoslavia to Western Europe has increased significantly.^{59, 182} There are numerous explanations for this: a larger percentage of the opium is now converted into morphine in Turkey rather than Syria; the overland transportation system has improved; the Bulgarian and Yugoslavian border guards are rather lax; and increasing vehicular traffic makes the likelihood of a thorough search improbable.^{59, 71, 182} The most popular method of smuggling involves the use of false compartments or traps built into passenger cars and commercial trucks and buses.¹⁸² Approximately one-half million Turkish labourers are

now in West Germany and they provide more than an ample number of willing couriers.* 31, 42, 182

West Germany has become a major staging area for huge stockpiles of morphine base en route to Southern France, but increased domestic concern and stricter, narcotics and customs enforcement may change the present German situation.^{32, 182} Italy is also a major trans-shipment point for morphine base en route to France; however, the prospects of improving Italian enforcement efforts are poor according to an international study conducted by U.S. Congressmen Murphy and Steele.¹⁰⁹ Since the Italians have no domestic heroin problem, they do not see the need for strict enforcement; the Italian police agencies are fragmented and do not co-operate well with each other or international narcotics enforcement agencies. In addition, "the Mafia is deeply involved in the narcotics traffic, and high-ranking Italian government officials aid that organization throughout Europe."¹⁰⁹ Reports of heroin refineries operating in West Germany, Italy and Sicily have not been confirmed;^{19, 59, 109, 182} however, the present distribution system would encourage such developments.

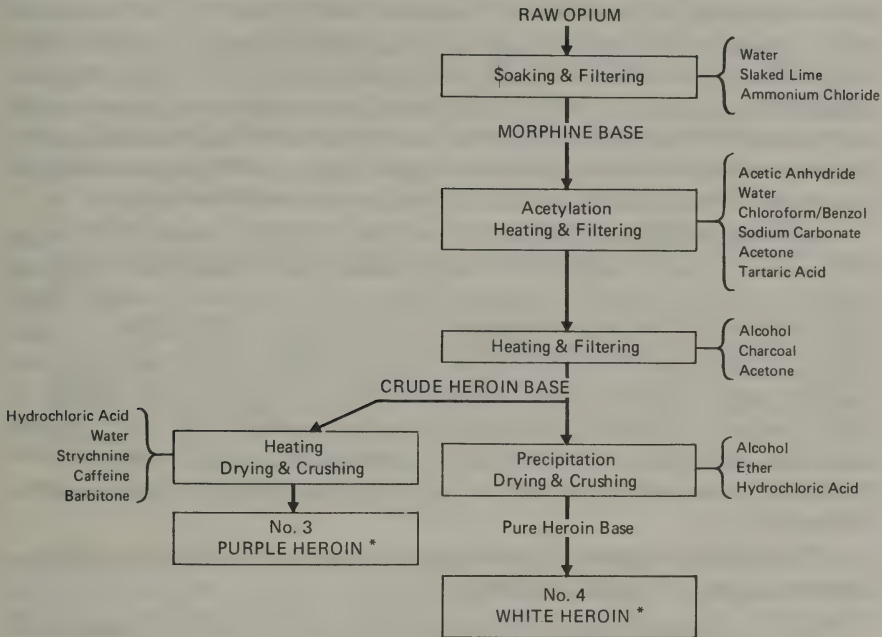
The processing of morphine base into heroin. According to Collins and Lapierre, the conversion of morphine base into heroin "is a straightforward but nonetheless exacting chemical process".⁴² The so-called "heroin chemists" learn the trade through apprenticeship to other heroin chemists; the basic equipment is easily obtained and only small amounts of common industrial chemicals are needed (see Figure B.1). Even the large sophisticated laboratories in Europe cost as little as \$4,000 to equip, and the floor-space requirements are small. The French laboratories each produce an average of about 20 kilograms of heroin per week, and will be shut down, dismantled and moved if there are no further conversion shipments or if police surveillance is suspected. The end product of this conversion process is a fine, fluffy white powder of approximately 90 per cent-pure heroin. Since the molecular weight of heroin is heavier than that of morphine, each kilogram of morphine base yields slightly more than one kilogram of heroin. Generally the laboratories operate on a commission basis, charging several hundred dollars for each kilogram of heroin produced; however, a smaller number of laboratories purchase their own supplies of morphine base and sell their heroin directly to international traffickers.^{42, 182}

Routes and methods of smuggling heroin into North America from Europe. The French heroin trade is dominated by a few large French-Corsican trafficking groups; only recently have non-Corsican French traffickers entered the heroin trade.^{96, 182} Although the majority of the heroin refineries are still located in the Marseilles area, several laboratories have recently been established in other parts of France.⁷³ Until the 1970s, domestic narcotics enforcement in France had been hampered by the political

* Labourers are not the only Turks involved in opiates smuggling. A Turkish senator was recently arrested at the French-Italian border en route from Turkey to Marseilles when 320 pounds of morphine base was found hidden in his car. Three other Turkish senators were implicated in the case.^{1, 163}

FIGURE B.1

CONVERSION OF OPIUM INTO HEROIN



* European laboratories produce only white heroin, while Southeast Asian laboratories produce both the purple and white varieties. Usage of the terms 'No. 3' and 'No. 4' are, consequently, restricted to Southeast Asia.

Source: United States, Cabinet Committee on International Narcotics Control. *World Opium Survey 1972*. Washington, D.C.: July, 1972.

influence of the French-Corsican syndicates, general French apathy towards the problem, and limited enforcement resources.^{31, 156}

French efforts to curtail the illicit refinement of heroin apparently increased two or three years ago with the major expansion of their narcotics squad and the establishment of narcotic enforcement training programs.^{42, 48, 49} Part of this increased concern was the result of direct pressure repeatedly applied by the American Government at the presidential, cabinet, diplomatic and international enforcement levels.^{42, 55, 93, 155, 156} Despite an increase in the number of arrests and seizures, reports in the summer of 1971 indicated that the French heroin laboratories continued to prosper.⁶⁶ In August 1971 John Cusack, head of the European branch of the American B.N.D.D., alleged that French police were deliberately overlooking the activities of the Marseilles heroin syndicates.^{66, 94} These charges were denied by the French Government and police, but subsequent arrests, seizures, and discoveries of heroin laboratories in the Marseilles area tend to confirm Cusack's statements.^{55, 66, 82, 94}

Following Cusack's charges there was an unprecedented series of major arrests of heroin refiners and traffickers in southern France.³² The recent development of a large heroin-using population in France has provided further impetus for improved enforcement efforts.^{32, 42, 55} A series of arrests beginning in September 1971 against one trafficking syndicate eventually resulted in the seizure of over 600 pounds of heroin in France and New York and 23 arrests.^{98, 112, 128} In the same month, 45 French members of another trafficking syndicate were arrested for conspiracy to import heroin into the United States.⁵² Furthermore, in November 1971 Roger DeLouette, a former employee of the French intelligence agency SDECE, was indicted on charges of importing 96 pounds of pure heroin into New York.

The largest seizure to date occurred near Nice in March 1972 when 935 pounds of pure heroin were found aboard the shrimpboat of Marcel Boucan, a known cigarette smuggler. Boucan was believed to have transported two previous heroin shipments to French-Corsican contacts in Latin and South America.^{92, 115, 177} French narcotics officers have not only continued to make major arrests of traffickers but, in the first seven months of 1972, they also arrested several of the more renowned "chemists", seized fairly large quantities of heroin and uncovered five heroin refineries.^{42, 96} During the entire previous decade only six heroin laboratories were discovered in France.⁹⁶

The American Cabinet Committee has provided the best brief description of European smuggling methods:

The most common known means of smuggling heroin into the United States are by body or baggage carry, by concealment in a motor vehicle or other sea freight, and by clandestine air transport. A body carry usually consists of smuggling a small amount of heroin by strapping it to the body or concealing it in one's clothing or body cavities. Frequent use is also made of airline passengers and crews and seamen who carry heroin concealed in their personal effects or baggage.¹⁸²

It should also be noted that some of the most successful heroin-smuggling operations have involved the use of diplomatic officials with formal customs immunity.^{26, 59, 71, 99, 116}

Twenty-five years ago, when the Mafia controlled refinement, importation, and distribution of North American heroin, two basic routes, and two or three ports of entry were used. However, as the number of refiners, importers and key distributors increased, and as law enforcement efforts improved, the routes, methods of smuggling and control of the North American market became more diverse and fragmented.³¹ The problems of identifying, let alone arresting, the new individuals involved are consequently that much more difficult. Unlike the situation a decade ago, a single major seizure or the arrest of one large-scale trafficker has virtually no impact on the street availability of heroin.³¹ Numerous major seizures within a short period of time are now necessary to affect street-level supplies of the drug.

The American Cabinet Committee indicated that there were three basic routes used to smuggle heroin from Europe into the United States:

from Europe directly or via Canada, from Europe via Mexico, and from Europe via various other countries in Latin and South America and the Caribbean.¹⁸² As in the past, New York is the largest North American consumer market as well as the major clearing-house for heroin distribution. The Cabinet Committee has provided a concise description of the first major route:

The direct Europe-US route is the oldest French heroin smuggling route and remains the most active. Direct shipments to the United States enable the French traffickers to avoid using foreign middleman smugglers who might otherwise establish a closer relationship to the US buyer. The French smugglers have the advantage of concealing their shipments within a huge volume of transatlantic commerce and need pass through only one customs check. The risk to the French traffickers, however, is much greater since the arrest of a courier in the United States, has often implicated the entire trafficking group.

Canada serves two primary roles in the movement of French heroin from Europe to North America. French traffickers may use the Canadian route as an alternative port of entry into the United States in the belief that customs inspections in Canada and on the Canada-US border are more relaxed than on the east coast of the United States, particularly when French passengers are involved. Canadian traffickers themselves also purchase sizable quantities of French heroin for distribution in Canada and/or resale to U.S. traffickers.¹⁸³

The second transportation network is apparently dominated by a small number of distribution agents operating out of Mexico City who appear to control the importation of pure European heroin and its resale to the large American east-coast syndicates.^{31, 99} These dealers are also involved in the South American cocaine trade, but generally do not handle the Mexican-grown opium products. Mexico first developed as a significant alternate route to the American east-coast market in the 1950s when first New York, and then Montreal and Toronto, tightened up their customs and law enforcement efforts.³¹

Considerably less is known about the Latin and South American route. The smuggling of South American cocaine to North America is a long-established and growing phenomenon, but it is not known when European distributors began to use this route. The leaders of many of the Latin and South American trafficking groups are of French-Corsican or Italian background and have close ties with their countrymen in Europe. Although it was first thought that these trafficking groups were independent buyers and sellers, it now appears that most simply act as agents for the large French-Corsican distributors and their Mafia buyers in the United States.³² The European heroin is believed to enter South America primarily through Buenos Aires and Montevideo, and is then distributed to various smuggling groups for reshipment to the United States.¹⁸² Much of the clandestine trade passes through Panama and Paraguay which serve as convenient refuelling and trans-shipment points; their limited border and narcotics enforcement has little impact on this illicit flow.^{32, 116, 139, 143, 191} The bulk of this heroin is smuggled into the southern United States aboard small private planes and

boats.^{32, 43, 104, 116} Over the last five years roughly 30 per cent of the European heroin entering the United States arrived via South and Latin America (excluding Mexico).³² One indicator of the popularity of this South and Latin American route is the recent emergence of Miami as a major port of entry; in 1971 over 460 pounds of pure heroin were seized in Miami and in the first month of 1972 two related seizures netted an additional 385 pounds of heroin.^{32, 104} Although Puerto Ricans, expatriate Cubans and, to a lesser extent, American blacks are major importers and distributors of cocaine, they are generally limited to the role of lower-ranking employees in the Latin American heroin traffic route.^{32, 105}

Customs and narcotics enforcement throughout Latin and South America has been superficial due to lack of concern, a shortage of enforcement resources, and the particular geographical and physical problems of border surveillance. The United States has applied considerable economic and diplomatic pressure to obtain governmental co-operation in some Latin and South American narcotics cases.^{79, 116, 139, 143, 190} For example, the United States indicted Auguste Ricord in March 1971 for conspiracy to import 97 pounds of heroin into New York, and it took 16 months to complete his extradition from Paraguay.^{110, 111, 140} In order to obtain Ricord, who is considered to be one of the top ten heroin distributors in the world, the United States Government, according to *Newsweek*:

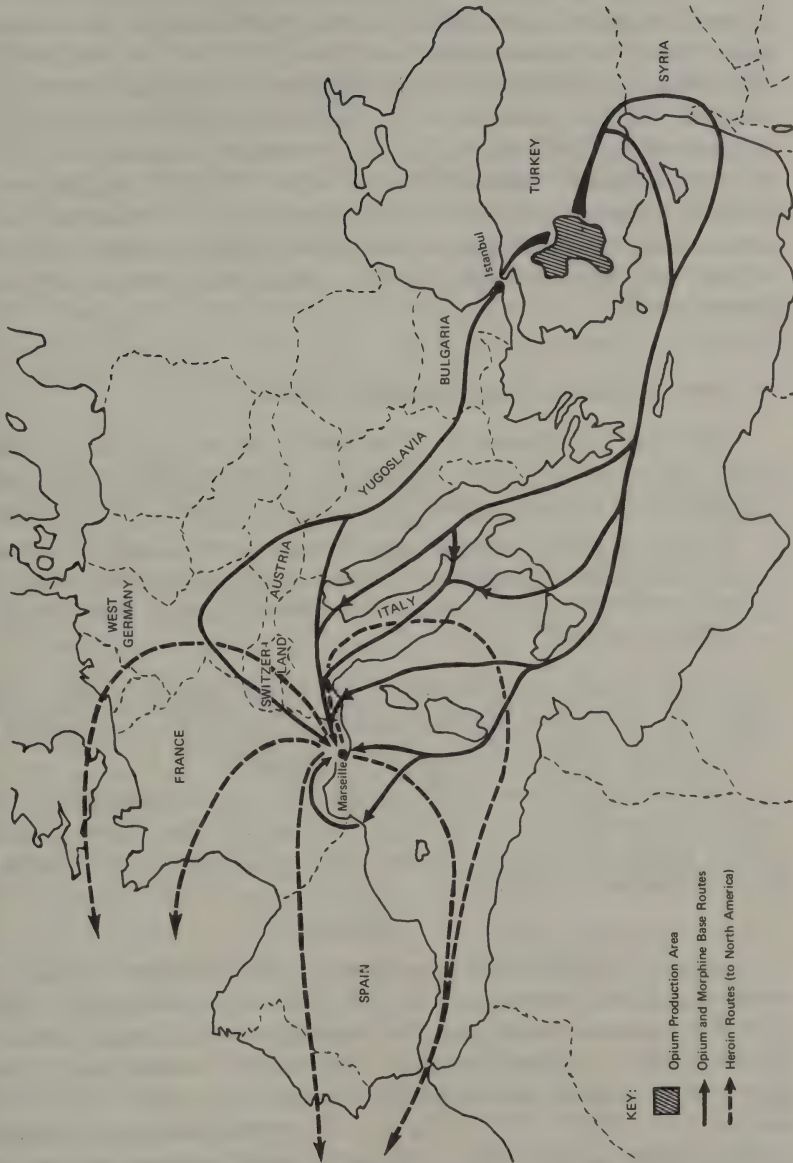
... planned to "snatch" him from Paraguay and fly him to the States without benefit of formal extradition proceedings. Paraguayan authorities were willing enough, but the U.S. Ambassador... reportedly blocked the idea. Then a lower court judge... [ruled] that Ricord could not be extradited because drug trafficking is not listed in Paraguay's extradition pact with the U.S. ...

Impatiently, the U.S. turned the screws on Paraguayan President Alfredo Stroessner. More than \$5 million worth of credit lines quietly dried up, U.S. military aid to Paraguay was halted and Stroessner was warned that funds from international lending organizations might also be affected. When the Paraguayan President passed through the U.S. last April en route to and from Japan, he was diplomatically snubbed and, for the first time since 1861, the U.S. ambassador cancelled the traditional Fourth of July party—the diplomatic event of the year in Asuncion. Finally, ... Gross [the U.S. State Department's top narcotics official] was sent to Paraguay ... as a personal emissary from President Nixon ...

[Eventually] three appeals court judges overturned the lower court verdict and approved Ricord's extradition.¹¹⁹

International co-operation and narcotics enforcement efforts have apparently improved in parts of South America in the last year as evidenced by the growing number of arrests and major seizures. In August 1972 the Argentinian police seized 100 pounds of heroin in Buenos Aires; in the same month Venezuelan police seized 53 pounds of heroin, and in October and November the Brazilian police confiscated 132 pounds of heroin and claimed to have arrested the major figures in a Mafia-related international distribu-

FIGURE B.2
MAJOR MIDDLE EASTERN-EUROPEAN NARCOTICS ROUTES



tion network.^{32, 70, 120} In addition, the Brazilian Government has recently deported several international heroin trafficking figures to the United States and Italy to face criminal charges.^{9, 12, 15, 46}

The crackdowns in Turkey, France and South America have resulted in price increases and a definite shortage of heroin at the wholesale and 'street' levels on the American east coast.^{51, 81, 92, 103, 163} In New York the Mafia and their French-Corsican suppliers have had difficulty maintaining adequate supplies of bulk heroin for sale, and the Chinese syndicates (selling Southeast Asian heroin) have at least temporarily assumed a larger share of the wholesale trade.³² Officials of the American B.N.D.D. suggest that French-Corsican refiners and traffickers may soon have to leave France entirely if present enforcement efforts are maintained, and continued police pressure in Latin and South America may force the development of alternate smuggling routes.³²

THE SOUTHEAST ASIAN NARCOTICS TRADE

The vast illicit market in China ended when the People's Republic of China was formed in 1949, and existing evidence indicates the problem of opiates use has been eliminated.¹⁸¹ The U.S. Cabinet Committee has stated:

There is no reliable evidence that China has either engaged in or sanctioned the illicit export of opium and its derivatives nor are there any indications of government participation in the opium trade of Southeast Asia and adjacent markets.¹⁸⁸

The earlier American, Taiwanese and Soviet allegations that China was consciously flooding the Western world with opium products appear to have been based on political ideology rather than fact.^{41, 59}

As noted earlier (see "Illicit Production and Consumption"), Southeast Asia is the world's largest source of illicit opium. One hundred of the 700 tons of opium produced in Burma, Laos and Thailand is available for the illicit international trade.¹⁸²

Burma

After Chiang Kai-Shek was driven out of Mainland China in 1949, remnants of his Nationalist 93rd Division, the Kuo-Min-Tang (K.M.T.), settled in Northern Burma and Thailand close to the Chinese border.¹⁶⁶ One of the K.M.T.'s major sources of income was derived from extorting a heavy toll on local opium producers passing through areas within their control.^{11, 54, 105, 142, 161, 166} The K.M.T. would then openly smuggle their extorted opium into Thailand.¹⁸² The Burmese Government complained to the U.N. about the presence of the K.M.T. in their territory and occasionally attempted to drive them out.¹¹³ Burma rejected American economic aid in 1953 to protest the American C.I.A.'s support of this foreign army,^{*166} and,

* American support of the K.M.T. was based on their utility as counter-insurgency and intelligence agents.^{27, 105, 166, 183}

in May 1959, Burmese forces captured and destroyed three K.M.T. opium refineries at Wanton and found an airstrip used to fly in supplies and reinforcements from Taiwan.¹⁰

Although the K.M.T. were eventually driven out of Burma in 1960, they resettled in Northern Thailand close to the Burmese border, in the centre of the opium-producing area, and continued to be a major factor in the illicit trade.²⁷ Apparently the K.M.T. are still involved in the smuggling of Burmese opium into Thailand.^{105, 129, 182} The C.I.A., in June 1971, stated that they had identified 21 opium refineries in the K.M.T. controlled 'Golden Triangle'—the area formed by the borders of Burma, Laos and Thailand.¹⁷

The American C.I.A. and the Taiwan Government relied on the Civil Air Transport Company, later renamed Air America, to supply the Kuo-Min-Tang troops in Burma and Thailand and Meo tribesmen in Laos. Both of these latter groups are deeply involved in the opium trade, and it is public knowledge in Southeast Asia that C.A.T., and later Air America, transported supplies and arms in and opium out.^{27, 71, 141, 142}

Thailand

Thailand is significant not only as a major producer and consumer of opium but also as the major conduit through which much of the Burmese opium flows. Thai Police General Phao Sriyanonda, in conjunction with the K.M.T., controlled the illicit narcotics trade in Thailand throughout most of the 1950s and was responsible for Bangkok's development as one of the world's largest illicit morphine and heroin refining centres.^{21, 76, 105, 188, 193} Phao was ousted after he staged a phony raid on the K.M.T. (all of whom escaped unhurt), confiscated their opium for his own purposes, and then—as deputy minister of finance—wrote himself a \$1.2 million reward which he said he gave to a secret informer who then immediately left the country.^{18, 105} The Chinese syndicates assumed control of Phao's abandoned enterprises, apparently continued the alliance with the K.M.T. in northern Thailand, and bribed a sufficient number of high-ranking government officials to protect themselves from police intervention.^{76, 105}

In September 1971, the United States and Thailand signed a *Memo-randum of Understanding* in which both governments pledged to suppress the illicit opium trade.¹⁸⁴ However, according to the New York Times, a joint-report of the C.I.A. and U.S. Defence Department, dated February 21, 1972, indicated that no progress could be expected, particularly in Thailand and South Vietnam, due to "the corruption, collusion and indifference" at certain levels of these governments.⁶⁴

Congressional action to cut more than \$100 million in foreign aid to Thailand unless the Thais took steps to suppress the illicit narcotics trade,⁶⁴ prompted major arrests and seizures against Thai heroin refiners and traffickers.^{14, 131, 132, 134} The most encouraging sign was a report indicating that the K.M.T. had accepted an offer by the Thai Government to give up opium production and settle in northern Thailand, "in return for cash

and other benefits"; the K.M.T. apparently handed over 20 tons of raw opium which was publicly burned.^{134, 182} In July 1972, Nelson G. Gross, the American State Department's senior drug adviser, labelled the earlier pessimistic report of the C.I.A. and U.S. Defence Department as "completely out of date" and indicated that progress was being made in Thailand and elsewhere in Southeast Asia.¹³⁹ It was later reported by Jack Anderson that the Thai authorities had simply staged the burning of the K.M.T. opium, using cheap fodder mixed with some opium.⁵ The apparent crackdown in Thailand may simply have forced the K.M.T., the Chinese syndicates, and other participants to be more discreet.

Raw Burmese and Thai opium is transported by the K.M.T. to various collection centres in northern Thailand where much of it is converted into morphine base.^{59, 76} Since the United States troop build-up of the late 1960s these laboratories have also produced heroin 'No. 4'.^{*32} From northern Thailand the opiates are loaded on trucks or planes for delivery to the clandestine laboratories of Bangkok,⁷⁶ or flown into Saigon⁷⁶ and Taiwan.²⁷ Apparently the Chinese syndicates control most of the illicit trade in Bangkok; the French-Corsican syndicates play a smaller role; and there are several relatively minor trafficking operations run by U.S. Vietnam veterans.³²

The U.S. Cabinet Committee provides a detailed picture of the flow of opiates out of Bangkok's refineries:

Most raw opium and morphine exported to Hong Kong, Malaysia, and Singapore is moved by various fishing trawlers under control of Bangkok traffickers. . . . The same organizations that run the trawlers are believed to handle, at the wholesale level, the growing traffic in No. 4 heroin to international markets. This product is either sold to buyers in Bangkok, who have been mainly US servicemen or US veterans, or delivered directly to buyers in the United States by couriers run by Bangkok dealers themselves.¹⁸³

The Illicit Opium Trade in French Indo-China: 1945-54

The development of the illicit opiates trade in Laos and South Vietnam is even more complex than that of Burma and Thailand. According to McCoy, the French Colonial Government in Indo-China was forced by world opinion to abolish its official opium monopoly (which had been a major revenue source) after the Second World War.¹⁰⁵ The unpopularity in France of the French involvement in Indo-China led to further reductions in the colonial budget. The French intelligence service (SDECE) secretly took over the opium trade, dubbed 'Operation X', to finance their intelligence and counter-insurgency operations against the Pathet Lao and Viet Minh.† In Saigon, the French allowed various elements of the criminal underworld

* 'No. 4' is injectable white heroin of at least 90 per cent purity. It is usually contrasted with 'No. 3', a purplish or brownish heroin of much lower purity prepared for administration by smoking. Usage of both of these terms is restricted to Southeast Asia.¹⁸³ See Figure B.1 above.

† The Pathet Lao and Viet Minh are, respectively, Laotian and Vietnamese communists who are fighting to establish national independence.

to run the prostitution, gambling, protection and narcotics rackets in return for ridding the city of Viet Minh guerillas and saboteurs. The opium not distributed in Saigon was sold to Chinese and local French-Corsican syndicates. These Chinese syndicates were allied with traffickers of Chinese background throughout Southeast Asia and the Chinese triads in Hong Kong. The French-Corsicans in Saigon smuggled some of their opiates to the French-Corsican heroin refineries of Marseilles.¹⁰⁵

After the French withdrawal from Indo-China in 1954, the United States became increasingly involved in Laotian and South Vietnamese political and military affairs. Although unintentional, this American involvement has furthered rather than arrested Southeast Asia's development as a major source for the international opiates markets.

Laos

The American Government has been financing nearly the entire costs of Royal Laotian military activities and, thereby, indirectly subsidizing the traffic in opiates throughout this country.^{25, 105, 162} General Ouane Rathikoune, the Royal Laotian Minister of Defence until July 1971, had been involved in collecting opium from the K.M.T., protecting—if not controlling—opium and heroin refining laboratories at Ban Houes Sai and elsewhere, using the Royal Laotian Air Force to fly opium products throughout Southeast Asia, and selling the final product to Chinese syndicates, South Vietnamese officials and others.^{16, 27, 54, 105, 117, 142} Rathikoune's career was abruptly ended when his activities were publicly disclosed by United States Representative Robert Steele.^{13, 117} The Nixon Administration confirmed the broad outline of the Congressman's charges and Rathikoune retired the next day.¹¹⁷ It has been alleged that many of the remaining Laotian Government officials are just as deeply involved in the opium trade as was Rathikoune.^{54, 76, 105, 142}

Since 1959–60, the American Government, through the C.I.A., have also supplied and supported Touby Lyfong and General Van Pao, and their Meo troops known as the Armée Clandestine.⁸⁷ The U.S. Senate Foreign Relations Committee noted that the United States budgeted \$322 million during the 1971 fiscal year to support these Meos, on whom the C.I.A. relies to keep the Pathet Lao from gaining control of northern Laos.^{87, 118} The headquarters of Pao's force at Long Cheng (built by the United States as a key C.I.A. base) is one of the major opium collection centres in Laos.^{27, 154} The bulk of the Meos' opium is flown aboard Southeast Asian military and para-military aircraft to Parkse, Vientiane or Saigon.^{27, 76, 91, 105}

Hughes, in his extensive survey of international heroin trafficking for the *Christian Science Monitor*, has stated that, ". . . clearly the C.I.A. is cognizant of, if not party to, the extensive movement of opium out of Laos."⁷¹ Additional evidence regarding C.I.A. involvement comes from journalist Carl Strock, reporting in the *Far Eastern Economic Review*:

Over the years eight journalists, including myself, have slipped into Long Cheng and have seen American crews loading T-28 bombers while armed

CIA agents chatted with uniformed Thai soldiers and piles of raw opium stood for sale in the market (a kilo for \$52).¹⁵⁴

Hughes' and Strock's observations have been echoed by several other sources.^{2, 3, 44, 105, 135, 141}

Prior to the late 1960s there was no local market for heroin No. 4 in Southeast Asia as the indigenous opiate users could not afford this preparation.³² With the large U.S. troop build-ups, the demand for heroin No. 4 increased and heroin No. 4 refineries were consequently established throughout the Golden Triangle.^{17, 32, 182} The massive U.S. troop withdrawals in the early 1970s created a surplus of inexpensive heroin No. 4 in Southeast Asia.³² There is increasing evidence that some of this surplus Laotian heroin is being smuggled into the Western European and North American markets.^{32, 105, 130} On April 5, 1971 about 17 pounds of pure Laotian heroin were seized at a military base in New Jersey; the package had been sent from Bangkok through the United States military mail.¹⁰⁵ The same month, the French Government refused to accept the diplomatic credentials of Prince Sopsaisana, the newly appointed Laotian ambassador to France, because 132 pounds of pure heroin were found in his baggage.^{86, 105} In November 1971, a Philippine diplomat and a Chinese merchant from Bangkok were arrested in New York with about 35 pounds of pure Laotian heroin.¹³³

As a result of American pressure, Laos enacted a law to prohibit the trade, manufacture, and transport of opium after November 15th, 1971. This new law, however, provides for temporary permits for opium smoking and growing by the hill tribes in the opium-growing areas.¹⁸⁹ There have been some significant raids and seizures since the enactment of this law, but it is difficult to predict its future impact without knowing if the attitude of government officials, who have for years protected the trade, has in fact changed. It is known that there is considerable hostility to the new law among large sectors of the Laotian people.⁸⁰

South Vietnam

South Vietnam does not produce opium but has a large opium-smoking population. Saigon has developed into a centre of heroin distribution for American troops and an international export clearing-house for Southeast Asian opium products.³² According to several journalists, the French-Corsican syndicates were key figures in the trade and flew into the major collection centres of northern Thailand and Laos to purchase opium. The Corsican fleets of small planes, popularly known as 'Air Opium', would then deliver the opiates to Bangkok and Saigon.^{27, 91} Part of this opium was converted to morphine base and shipped by the Saigon French-Corsican syndicates to Marseilles for heroin refinement. The role of the French-Corsican air fleets declined as Air America and the Thai, Royal Laotian, and especially the South Vietnamese air forces increasingly assumed this opium transportation role.²⁷

As in Thailand and Laos, the illicit trade in South Vietnam is a major source of income for some of the country's high-ranking government officials. Charges of opiate-related corruption in South Vietnam have frequently been corroborated by American Government officials. A statement by the United States provost marshal in South Vietnam,¹⁵² the 1972 joint report of the American Defence Department and the C.I.A.,⁶⁴ and testimony presented to the U.S. Congressional Special Subcommittee on Alleged Drug Abuse in the Armed Services,¹⁸⁶ reinforce this picture of corruption of South Vietnamese political, police and military officials.* U.S. Representatives Murphy and Steele,¹⁰⁹ in their international study of opiates distribution, stated that, "strong action must be taken to stop the heroin traffic in South Vietnam. We are not optimistic that the [Vietnamese] Government is either willing or able to take such action".

South Vietnamese President Thieu launched a well-publicized anti-drug crusade in the summer of 1971. In August of that year President Thieu ordered the death penalty for persons belonging to organized drug-trafficking syndicates and introduced "a tough emergency bill", which made dealing in narcotics a war-time crime, and outlawed opium dens.^{152, 178} However, the following quotation from a *St. Louis Post-Dispatch* editorial reflects the skepticism of most observers:

To the unwary, President Nguyen Van Thieu of South Vietnam may seem to have been launching his country on an anti-drug crusade. . . . But reports from Saigon suggest that Thieu's crusade is hardly credible.¹⁵²

The South Vietnamese police, with the assistance of the American B.N.D.D., have apparently made some arrests and seizures since the enactment of this new law.^{163, 185} However, it is presently impossible to determine the full effect of this legislation on opiates distribution in South Vietnam. The withdrawal of American troops resulted in at least a temporary reduction of the price of heroin in South Vietnam to approximately \$600 a kilogram in the fall of 1972.³²

Hong Kong

Hong Kong is Asia's other major centre of illicit narcotics refinement, consumption and export.^{59, 77} Several years ago the majority of Southeast Asia's opiates export trade was channelled through Hong Kong, but in recent years Bangkok and Saigon have assumed larger shares of this international trade. According to the U.S. Cabinet Committee, Hong Kong still annually imports ten tons of morphine base for refining (most into heroin No. 3—smoking heroin) and about 50 tons of raw opium for both

* Non-South Vietnamese governmental officials, including some Canadians, have also been involved in the illicit opiates trade.¹⁰⁴ Browning and Garrett report that,

In 1962...an opium-smuggling scandal stunned the entire Canadian Parliament. It was in March of that year that Prime Minister Diefenbaker confirmed rumours that nine Canadian members of the immaculate United Nations International Control Commission had been caught carrying opium from Vientiane to the International markets in Saigon on UN planes.²⁷

its 150,000 local users and the export trade.¹⁸² Most of Hong Kong's illicit imports arrive from Bangkok aboard Thai fishing vessels, which regularly make deliveries to small Hong Kong junks in international waters or in the nearby territorial waters of the People's Republic of China.^{77, 182}

The Ch'au-chou Chinese syndicates control the illicit narcotics trade in Hong Kong.^{32, 182} Parallel in structure and organization to the Mafia and French-Corsican syndicates, the Ch'au-chou wield comparable political and economic influence, share a common heritage and dialect, and maintain contact with criminal syndicates of Ch'au-chou descent in the Chinese communities in other parts of the world.^{32, 77} Independent Ch'au-chou and other Chinese syndicates dominate the collection, refinement and distribution of illicit opiates throughout Southeast Asia.³² The large number of opiate users of Chinese ancestry in Southeast Asia explains the predominance of the various Chinese narcotics syndicates.¹⁸²

In addition to its own dependent population, Hong Kong supplies the relatively small opiates market in the Philippines and produces some heroin No. 4 for the international export trade.¹⁸²

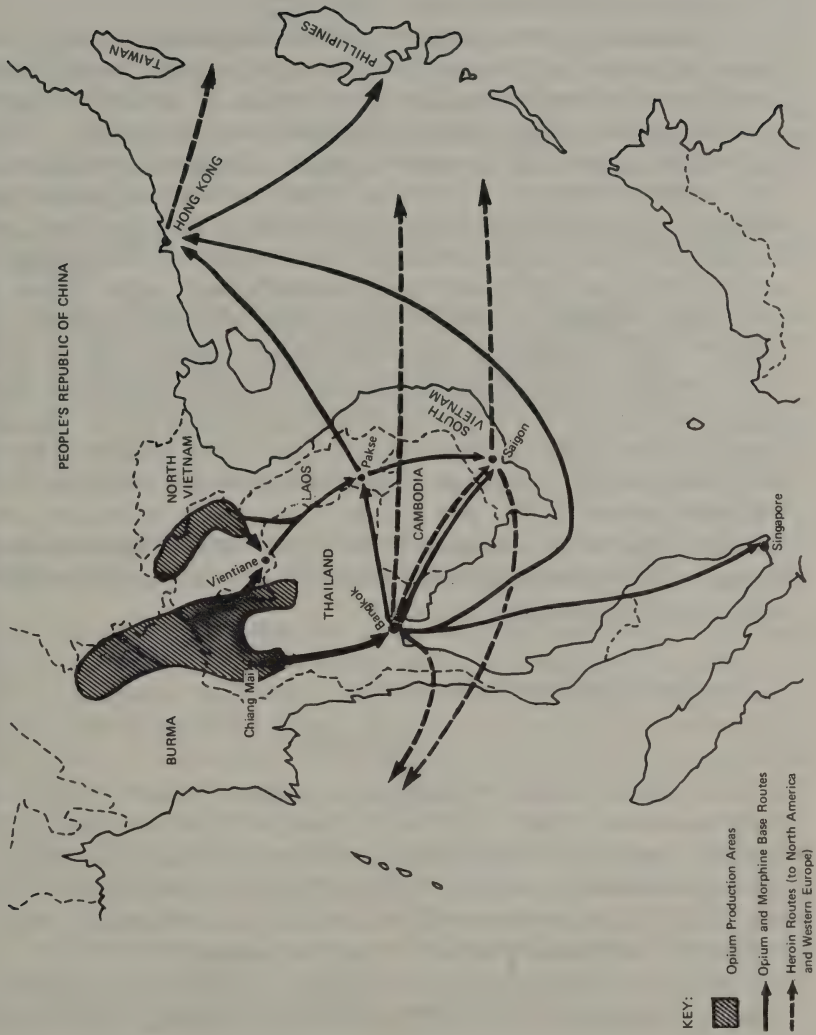
*Routes and Methods of Smuggling from Southeast Asia
to North America*

Prior to World War II, the Chinese on the North American west coast dominated our illicit trade with supplies of Southeast Asian opiates smuggled to them by Chinese seamen aboard ocean-going freighters.³⁸ After the war, however, Southeast Asia became a relatively insignificant source of North American narcotics, and this situation remained unchanged until five or six years ago. Two main factors have historically limited the flow of Southeast Asian opiates into North America: the ready availability of European heroin, and the problem of coordinating Chinese control of supply with Caucasian control of North American demand.

The difficulties encountered by European distributors, coupled with the decline in the availability of inexpensive Middle Eastern opiates, has removed the first barrier,^{32, 182} while the American presence in South Vietnam and elsewhere in Southeast Asia has removed the second.^{76, 105, 182} As indicated above, American financing has supplied the Thai, Laotian and South Vietnamese Governments with the funds and supplies necessary to modernize the logistics of the Southeast Asian narcotics trade. Although the C.I.A. itself has identified 21 opium refineries in Southeast Asia and implicated the existing governments in their operation,¹⁷ the American Administration has yet to revise its military and financial support of these regimes. The Vietnam War has opened up new routes, spawned new syndicates, provided the necessary couriers, and increased the demand for opiates in both South Vietnam and the United States.

There is evidence that heroin is being carried into the United States by Southeast Asian diplomatic personnel or by means of diplomatic pouches.^{71, 89} The French-Corsican syndicates of Southeast Asia are now likely to supply

FIGURE B.3
MAJOR SOUTHEAST ASIAN NARCOTICS ROUTES



even larger quantities of Southeast Asian heroin to their Marseilles counterparts. It has been suggested that leading North American Mafiosi with Southeast Asian gambling interests may also now be purchasing pure bulk heroin for import into the United States.¹⁰⁵ In addition, small-scale smuggling by the remaining G.I.'s in Southeast Asia and the syndicates composed of ex-G.I.'s adds to the Southeast Asian flow.^{76, 109}

Of greatest concern, however, is potential impact of the Ch'au-chou syndicates' revival of their pre-war system of narcotics smuggling into the North American west coast. The Ch'au-chou in Hong Kong and elsewhere in Southeast Asia are apparently shipping large quantities of heroin to Ch'au-chou contacts in Vancouver, Seattle, Portland, San Francisco and Los Angeles.³² Preliminary results of 'Operation Seawall' (a joint program undertaken by the United States and Canada to stop this flow) indicated that most of the heroin is carried by Chinese sailors of Ch'au-chou origin.³² In April 1972, the first month of Operation Seawall, eight Chinese seamen were caught bringing in one to four pounds of heroin strapped to their bodies.⁶⁴ Once smuggled to west coast Chinese contacts, some of the Southeast Asian heroin is delivered to Chinese trafficking syndicates in New York and other east coast distribution centres. In August 1972, the unofficial mayor of New York's Chinatown and three other Chinese were arrested after they sold 20 pounds of pure Southeast Asian heroin to B.N.D.D. undercover agents.^{102, 163}

According to the American B.N.D.D., the flow of illicit narcotics from Southeast Asia to North America has risen several-fold in the past few years, and further increases are expected.^{32, 181}

THE MEXICAN NARCOTICS TRADE

Cultivation

The Chinese of San Francisco first introduced opium poppy cultivation to Mexico shortly after World War II disrupted the flow of opiates from the Orient.⁵⁹ There is now illicit opium cultivation throughout the rugged, mountainous, northwestern states of Mexico.⁵⁹ As in the Middle East and Southeast Asia, the poppy farmers of Mexico live at a subsistence level; opium represents a substantial portion of their cash income.⁵⁹

Mexico is a relatively small producer of illicit opium with an annual estimated production of 10 to 20 tons.¹⁸² Since Mexico is not a significant consumer, almost all of the crop is converted to heroin for export to the United States and Canada. It almost totally dominates the heroin markets of California, Texas and other southwestern states.^{31, 43, 59, 79, 99} Mexican heroin is brownish in colour and only 60 to 70 per cent pure at its source. In Vancouver, it has, in the past, been virtually impossible to sell Mexican heroin unless there was a shortage of the purer European or Asian varieties.¹⁴⁷ The unpopularity of Mexican heroin helps to explain why it is far less expensive than even adulterated European heroin of the same purity.

The Organization of the Mexican Trade

The Mexican distribution system is composed of a large number of independent growers, refiners and distributors of varying importance. Even at the upper levels, there is no controlling organization into which the supplies flow or which has the power to dominate the market or set price, quality, or operating standards. A large number of these Mexican dealers run vertically integrated operations controlling the opium crop from the time it is planted until it is sold as heroin. These dealers are likely to own an opium farm, run a conversion laboratory, and maintain a network of agents and couriers to sell and deliver the finished product. Even the biggest Mexican dealers handle much smaller quantities of heroin than the average French-Corsican syndicate.^{31, 99, 126}

The best description of these Mexican dealers has been provided by L. J. Redlinger:

Many of the large dealers in Mexico are also in legitimate occupations, most of which pay well. For example, in recent years mayors of cities as well as other politicians have dealt in large quantities of heroin (or opium). Some physicians are also deeply involved in the heroin business as well as businessmen. In many cases, these men finance the building of processing plants to convert the Mexican grown opium into heroin. . . . In addition, they must hire a competent chemist and bribe local officials. If they own the crop, they must pay tenant farmers to care for and harvest the opium. Then they must transport the product to, at least, their side of the border and in many cases all the way to [American import centres].¹²⁶

The informal organization and lack of central control affects not only law enforcement efforts but also access to the Mexican-grown opium products. Since the market is so diffuse, the arrest of any one dealer or group of dealers will not substantially impede the flow of narcotics. It is virtually impossible for any one syndicate to control the market and charge monopolistic prices. This further explains why the price of heroin at all levels of distribution is far lower in the Mexican market than for similar quantities imported from Europe.⁵⁹ The Mexican dealers appear far less concerned about the criminal credentials of their buyers; heroin appears to be available in even small quantities to anyone who can raise the necessary cash.^{59, 99} For these reasons the Mexican trade is an extremely important source of heroin for the small independent dealers of North America since the distributors of European heroin refuse to deal directly with this level of traffickers.¹⁴⁷

Routes and Methods of Smuggling

It is virtually impossible to prevent heroin from being smuggled from Mexico into the United States and Canada. There are scores of relatively safe routes along the 1800-mile Mexican-American border. The popular border crossings are often so swamped with vehicular and pedestrian traffic that a courier's chances of being discovered are minimal, especially if the heroin is carefully concealed, as the drug is almost odourless.

Given the nature of the border, the only way to effectively reduce the flow of Mexican heroin is to eliminate cultivation. The Mexican Government is continually attempting to do this, without apparent success.^{43, 79, 99, 185} The local and federal police are often overworked, afraid, or bribed not to enforce the opium prohibition.^{59, 79, 99} In some cases, the police and local politicians themselves have been directly involved in the trade.^{99, 126}

In 1961, Mexico and the United States exchanged notes by which the United States undertook to supply Mexico with equipment to locate and destroy opium poppy and marijuana fields.²² Although considerable publicity was given to this agreement and subsequent announcements of the destruction of Mexican poppy fields, the flow of heroin has continued unabated.^{32, 43, 99, 185} In September 1969 the American Government undertook a three-week crash program to search all vehicles and persons crossing the Mexican border into the United States. 'Operation Intercept', as it was called, was undertaken shortly after a U.S. Presidential task force reported that Mexican efforts and resources continued to be inadequate in the face of the drug problem.⁷⁹ As a result of Operation Intercept, cars were tied up at the border for six hours, the number of American visitors declined, and unemployment rose dramatically in Mexican border towns which were dependent on tourism. The three-week operation drastically reduced the flow of marijuana, but had a far less significant effect on the heroin traffic.¹⁵⁶ The United States and Mexican Governments soon introduced a substitute anti-narcotics campaign titled 'Operation Cooperation', and in August 1971 Mexico announced the seizure of 176 pounds of opium and 116 pounds of heroin since the institution of this program.¹⁸⁵

If North American demand rises, there will be more pressure to expand illicit heroin production in Mexico. The development of the Mexican heroin network illustrates the flexibility of the international opiates trade; a crack-down on production in one growing area appears to spawn new sources, leaving the overall situation relatively unchanged.

THE ROLE OF THREE SOURCES IN THE NORTH AMERICAN MARKET: A SUMMARY

The quality, quantity and production costs of heroin differ in each of the three illicit sources. Even more significant is the fact that illegal control of these sources and, therefore, access to them, varies considerably. Each of the sources is independently operated, yet affected by developments in the other two. The exact role of each source in the North American market has become increasingly difficult to determine because of recent increases in illicit demand and the diversification of importation routes.

The Middle East apparently still supplies the majority of the North American market. Much of this heroin is rerouted through Canadian and Latin and South American contacts to the American east coast. Although this market is less tightly controlled than it once was, the smaller North American traffickers are still forced to buy from secondary distributors.

European heroin has always been relatively expensive, especially at the lower levels of distribution, due to the large number of individual dealers who handle it before it reaches the street. The quantity of European heroin entering North America is now expected to continue to decline as a result of the termination of legal Turkish opium cultivation and the improved policing of French refining.

The flow of heroin from Southeast Asia has increased dramatically in the last few years, and this trend is expected to continue. Although Southeast Asian heroin has always been less expensive at its source than that from Mexico or the Middle East, there were substantial problems in coordinating the Asian control of supply with the Caucasian control of demand. This problem has apparently been solved, at least temporarily, by the revival of the Ch'au-chou Chinese pre-war distribution system. In addition, the French-Corsican syndicates, American G.I.'s and ex-G.I.'s, and perhaps the Mafia, have also established means of smuggling Southeast Asian heroin into North America. The reduction in Middle Eastern cultivation and French refining will further encourage the expansion of the Southeast Asian flow. Some officers of the American B.N.D.D. suggest that Southeast Asian heroin will soon dominate the North American market, while other sources simply predict continuing increases.

As already indicated, there should be pressure to increase Mexican cultivation if the popularity and purity of its heroin improves. In addition, this heroin is far less expensive, at all levels, than Middle Eastern-European heroin. Mexican heroin now dominates the southwestern United States market and is an alternate source for dealers throughout North America. Mexico is also an important source for the smaller North American dealers who do not have the cash or contacts to buy from the more traditional outlets. It is too early to predict the effects that the likely establishment of permanent Southeast Asian routes will have on Mexican production.

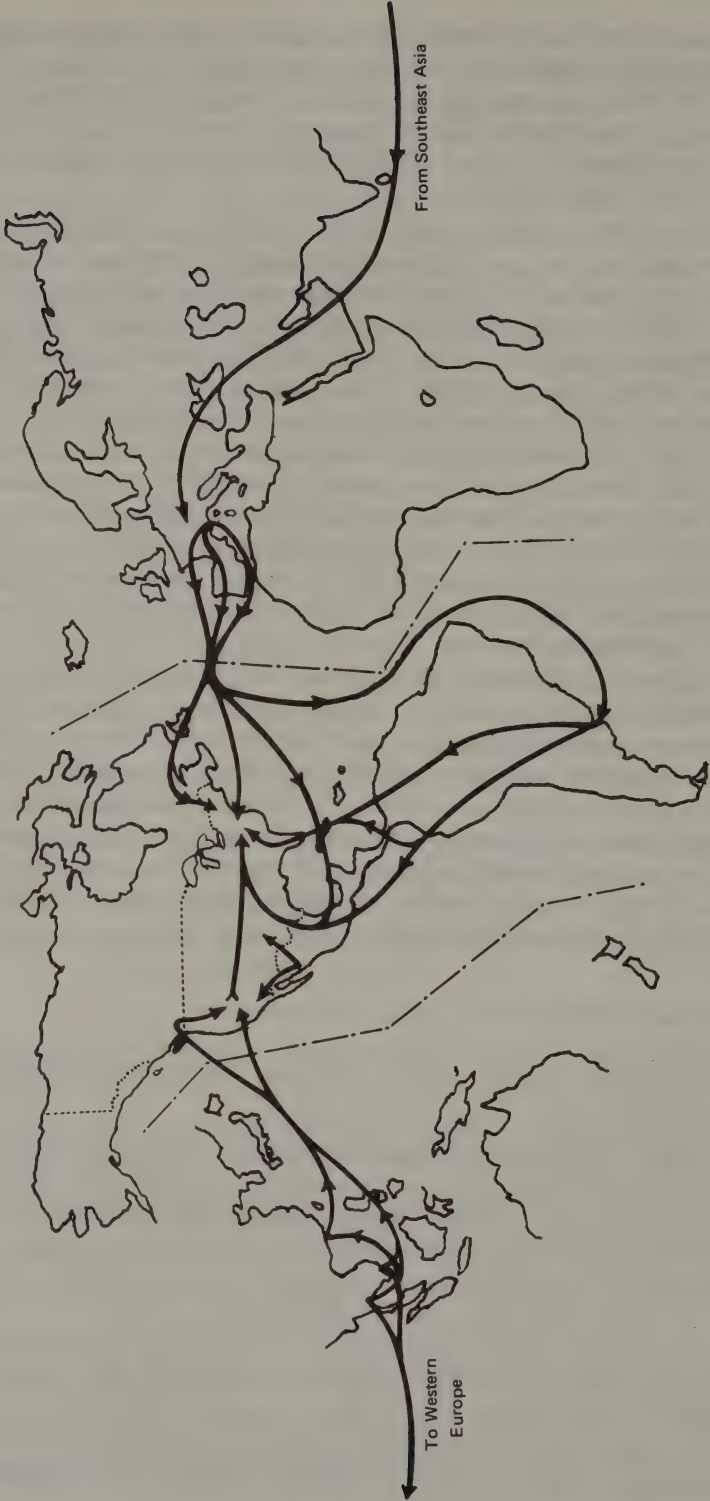
NATIONAL PATTERNS OF ILLEGAL DISTRIBUTION

THE BASIC NATURE OF THE CANADIAN HEROIN DISTRIBUTION SYSTEM: AN OVERVIEW

Large-scale, commercial cultivation of the opium poppy has never been discovered in Canada.¹⁴⁷ From time to time there has been scattered illegal opium cultivation in British Columbia, but the final product is suitable only for the preparation of a relatively weak tea produced from boiling the crushed poppy pod.^{38, 148} Apparently this practice was quite prevalent during World War II when other opiates were unavailable.³⁸

The international illicit narcotics trade, which is dependent on opium cultivation in the Middle East, Mexico and Southeast Asia, is crucial to the supply of the Canadian market. Since the end of World War II, Middle Eastern opium, refined primarily in France and to a lesser extent Italy, has been the major source for heroin entering Canada. Mexico has chiefly served

FIGURE B.4
MAJOR INTERNATIONAL HEROIN ROUTES TERMINATING IN NORTH AMERICA



as a reserve source for the Canadian market, especially during street 'panics' resulting from temporary shortages of European and Southeast Asian heroin.¹⁴⁷ In addition, small dealers have turned to Mexico as an inexpensive and readily accessible source of heroin.¹⁴⁷ If Mexican heroin improves in quality (and there is evidence that this is occurring), it will probably assume a larger share of the total Canadian market.

Asia was the major source for opiates entering British Columbia until the Second World War, while eastern Canada appears to have been supplied by American and European sources. At that time the Chinese were dominant figures in the west coast illicit trade, importing opiates from the Orient on ships manned by Chinese seamen.³⁸ The war interrupted most trans-oceanic opiates transportation, and, in the post-war period, the primary centre of importation shifted from Vancouver to Italian control in Toronto and Montreal.^{*149} This situation, however, appears to have been altered by the recent revival of the pre-war, trans-Pacific Chinese distribution network and the development of new Southeast Asian routes, both of which appear to be radically affecting the pattern of heroin distribution in the United States and Canada.³² Recent evidence indicates that Vancouver is now a major port of entry for the American heroin market.

The heroin entering Canada is derived in varying proportions from all three major international sources, each of which tend to serve a different segment of the distribution system.^{146, 149}

THE CONTROL, ORGANIZATION, STRUCTURE AND SCOPE OF THE CANADIAN DISTRIBUTION SYSTEM

Control and Organization

At the present time, heroin importers in Quebec and Ontario are said to be responsible for supplying the bulk of the heroin consumed in Canada.^{137, 146} Although large quantities of Southeast Asian heroin are shipped by the Ch'au-chou syndicates to Chinese contacts in Vancouver, most of this heroin is apparently rerouted to the American market.^{32, 146} The remainder of the heroin consumed in Canada is imported by a variety of Caucasian traffickers, ranking from 'amateurs' dealing in relatively insignificant quantities of American 'decks'† to sophisticated criminal syndicates in Vancouver dealing in pure bulk heroin.

The individuals controlling the upper levels of importation and distribution in Canada (see Figure B.5) are well-established criminals.‡¹³⁷ All

* Heroin, which first appeared around 1930, replaced opium and morphine as the national drug of choice after the Second World War.^{38, 86} Opium, however, is still occasionally smuggled into Canada's larger cities, where it has become increasingly popular (at between \$100 and \$175 per ounce) among youthful multi-drug users.

† In the United States, street doses of heroin are generally packaged in small glassine envelopes called 'decks'. These envelopes were designed for and are commonly used by stamp collectors to protect individual stamps.

‡ The following analysis of the Canadian distribution system refers to the Caucasian syndicates; the control, organization and structure of the recently revived Chinese distribution network may well be different.

operations at this level are founded on an extensive financial and criminal base which provides the contacts and ancillary services required to remain in business. Operations at this level are syndicated or organized,* but only a small percentage are controlled by the Mafia.† Many high-ranking importers and distributors have been implicated in other criminal activities such as gambling, disposal of stolen property, loan sharking, prostitution, jury tampering and murder.^{137, 147}

The establishment of this financial and criminal base is a necessary prerequisite for dealers aspiring to the upper levels of heroin distribution.¹³⁷ In Canada these upper levels of distribution have not yet been subject to the same degree of competition that has altered the structure of the American market.³¹ Access and control are tightest at the upper levels of distribution, but become progressively more relaxed as one approaches the street level. Generally, a dealer's purchasing price is a function of his access: the closer to the source he obtains the heroin, the cheaper it is. At any level of distribution, a dealer must absorb the profits and overhead of the intermediaries between himself and the initial source of the heroin.

Traditionally, as police pressures increase, the participants in the illicit trade have been forced to restrict their dealing to one level of the marketplace in order to minimize their risks. In Canada and the United States, the development of these highly specialized distribution roles is a reaction to the increasing use of undercover agents and conspiracy prosecutions.^{31, 137} As the number of independent levels of distribution increases, a dealer's selling price rises proportionally since his selling price is dependent on his purchasing price and his risks. The term "risk" includes any activity that involves investing capital, possible losses due to theft, or increases in the likelihood of prosecution or the severity of a sentence that might be imposed. Importing drugs across a border, selling during a 'panic', selling in small quantities or to unfamiliar purchasers, or being in a position to draw police attention are all factors that would increase a dealer's risk and, therefore, his selling price. Risk is strongly weighted in favour of the upper-level distributors who bear the greatest risk of significant financial loss but the least risk of criminal prosecution.

Structure of the Distribution System‡

The heroin market is hierarchical in structure. Upon entering Canada the heroin will usually flow through at least four independent levels before reaching the consumer.§ This hierarchical structure has evolved specifically

* The terms 'syndicated' or 'organized' refer only to those large-scale, sophisticated, criminal enterprises characterized by a hierarchical division of labour and rational attempts to avoid the efforts of law enforcement.

† See footnote on page 570.

‡ This discussion of heroin distribution in Canada reflects the 1971 Vancouver situation as portrayed in several Commission studies.^{68, 137, 146, 147, 149}

§ The structure of the American heroin distribution system is somewhat more complex than the Canadian model, usually involving between five and seven levels of distribution.

to minimize risks of criminal prosecution and financial loss. The following discussion (Illustrated by Figures B.5 and B.6) describes the basic model for the distribution of Middle Eastern-European heroin in Canada.* It should be noted, however, that there are scores of possible variations, especially at the middleman level and below, which cannot be portrayed in such figures.

The Canadian importer. Each major importing syndicate is run by one or two key men who have the contacts and capital to purchase from the European refiners and sell to the city distributors of North America. Basically, these importers are financiers importing heroin for a small number of large city distributors. The importers maintain agents in Europe to deliver the cash, pick up the heroin, and arrange for Canadian delivery. The heroin may be hidden in freight or carried into Canada by couriers in their luggage or taped to their bodies. In most cases the courier is completely expendable as his capture rarely endangers the rest of the operation.

The importer's operation is well insulated from any incriminating transactions. He is never in possession of the heroin and most of the risk is borne by his couriers and employees. The importer is virtually immune to prosecution unless he sells directly to an undercover agent or he is set up for prosecution by one of his employees or clients. An entire year's operations may include only three or four shipments. The relatively low visibility of importation operations do not necessitate the widespread corruption of governmental and law enforcement officials that characterize the much more highly visible cultivation and refinement stages of the international trade.

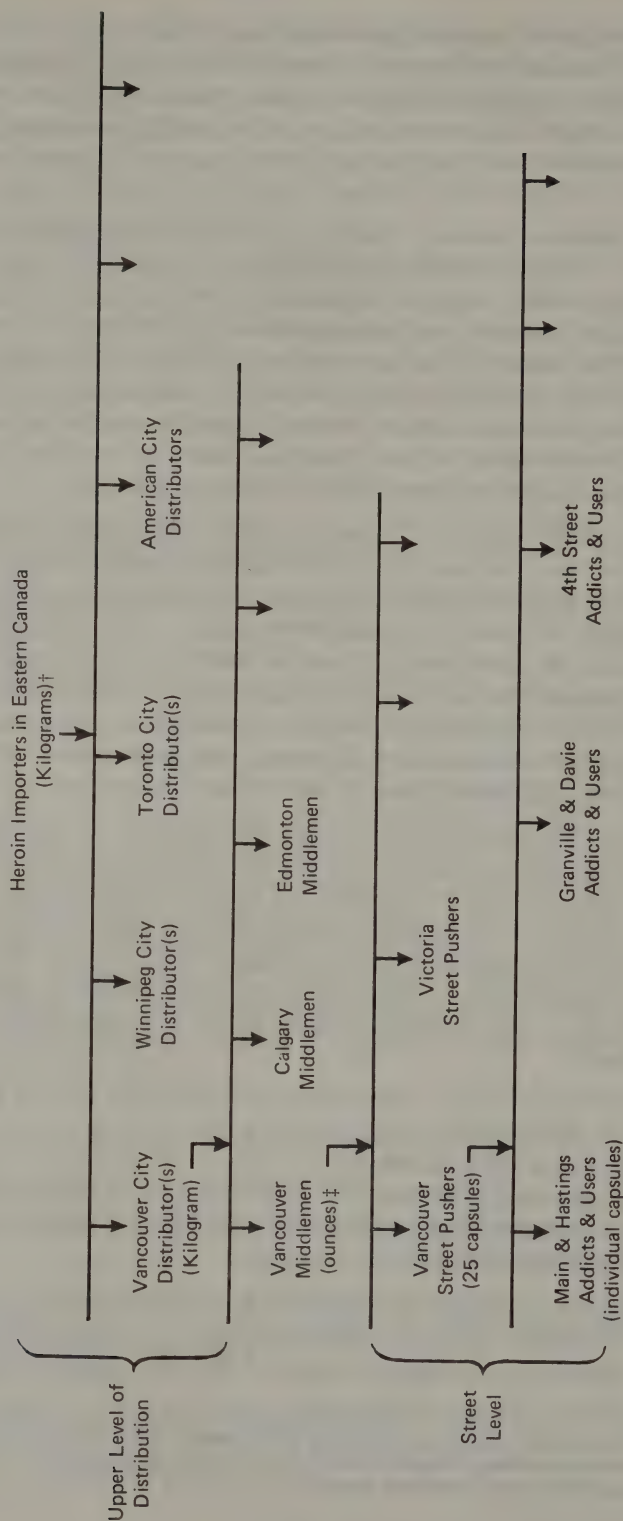
The city distributor. A city distributor's operation is composed of four key employees: the top man, the courier, the back-end man and the front-end man (see Figure B.6). The 'top man' (or men) runs the operation and hires the other employees; he has the contacts and the capital to purchase bulk heroin from the importers in eastern Canada. His heroin is delivered by a courier or, occasionally, is sent through the mail. When the heroin arrives it is hidden at a secret address ('stash') where it is later picked up by the back-end man.

The 'back-end man' is responsible for the heroin once it arrives. It is vital to keep the back-end man's identity secret for he is the only man who can link the rest of the syndicate to the heroin itself. Sometimes a lower-level employee is hired specifically to help with the heroin 'cutting' (dilution) and 'capping' (encapsulation of heroin for resale); in other syndicates the back-end man will do this himself.

The heroin is weighed and placed in a flour sifter with a fixed quantity of diluents, usually milk sugar (lactose). The exact ratio of heroin to the diluents depends on the desired purity of the final 'capped' product. The

* The Middle Eastern-European distribution network is used as the basic model in the following figures and discussion because it has supplied the bulk of the heroin entering Canada since the Second World War. The Mexican and Southeast Asian distribution systems may differ from this basic model.

FIGURE B.5
TRADITIONAL PATTERN OF HEROIN DISTRIBUTION IN CANADA*
(1971-1972)



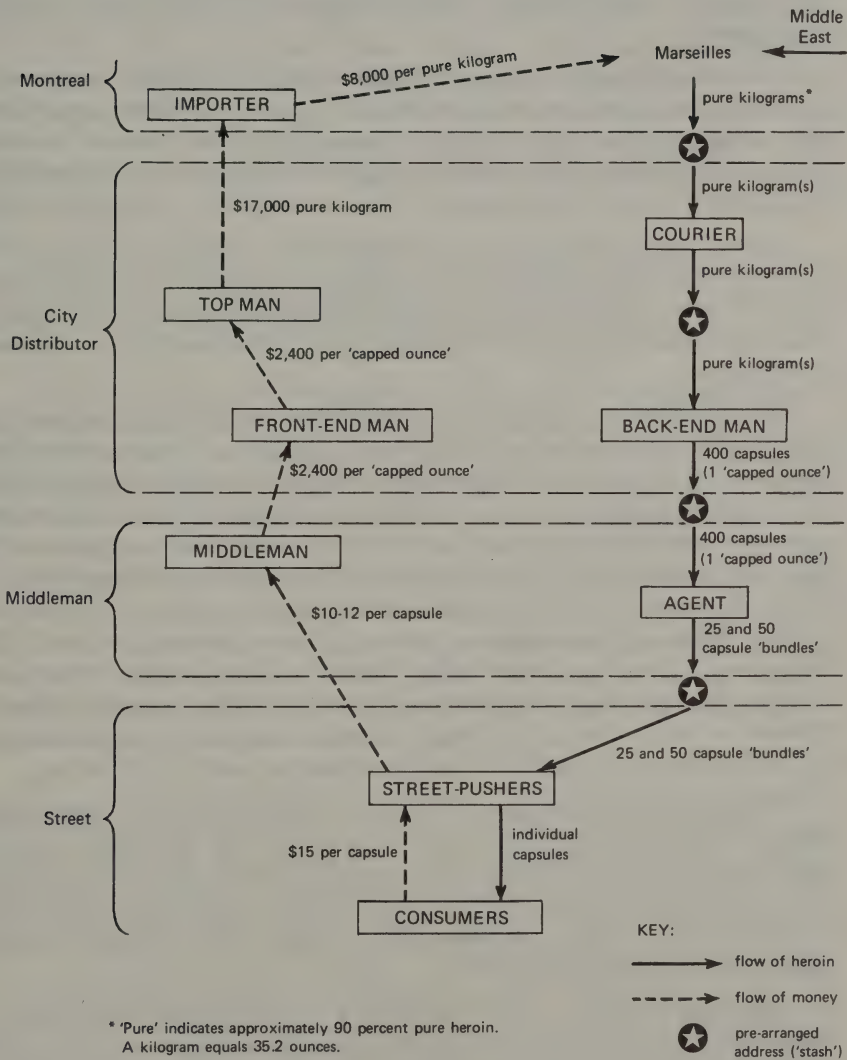
* Vancouver is used as the primary distribution centre in this figure, although similar patterns exist in some other large Canadian cities.

† Unit of purchase at each level is indicated in parentheses.

‡ The heroin is sold in 400 capsule lots commonly referred to as 'capped ounces'.

FIGURE B.6

STRUCTURE OF A TYPICAL CANADIAN CITY DISTRIBUTION SYSTEM
(1971-72)



mixture is sifted two or three times to ensure an equal consistency, then placed on a sheet of glass and rolled to the thickness of a No. 5 capsule.* In Vancouver the majority of the 'cappers' are addicts who are paid in heroin capsules for their services. One ounce of 90 per cent pure heroin is usually diluted to produce slightly more than two ounces of heroin mixture which in turn yields close to 900 street capsules. These capsules are then packaged in 100-capsule lots and wrapped in a balloon or condom. The back-end man then places 400 capsules (called a 'capped ounce') in an air-tight container and hides it at a secret location. The address of the stash is then relayed to the top man.

The 'front-end man' is the salesman; it is his job to make contact with the middleman. In most cases the middleman buys in 400 or 800 capsule lots. Once a buy has been arranged, the top man tells the front-end man the location of the stash. The middleman hands the cash to the front-end man and in return is given this address.†

Neither the middleman nor the front-end man know the identity of the back-end man. The problems of prosecuting a well-run city distribution system are obvious: the top man and front-end man, who are usually known to the police, never see or touch the heroin, and the back-end man is unknown to the police.

The middleman. Generally the middleman is an independent criminal entrepreneur. Although he is not necessarily part of any larger criminal syndicate, he usually requires criminal contacts and at least a few thousand dollars to start his operation. Some middlemen are addicts, but the individuals above this distribution level are not. It is not unusual for a middleman to dilute the capsules before reselling them, thus substantially increasing his profits. Typically, the 400 capsules are divided into 25- and 50-capsule 'bundles' which are wrapped in balloons or condoms and 'stashed'. The middleman or his agent then makes contact with the 'street pushers' and arranges for the sale of the bundles. Again, the same procedure may be followed as in the case of the city distributor's operation: the pusher pays for the bundle and, in return, is told the location where it is hidden.

With the recent expansion of Canada's addict population, some newly addicted persons with previous multi-drug distribution experience have become small-volume middlemen. These persons obtain their heroin from a variety of sources including lower-level distributors in American cities close to the Canadian border, mailings from Europe, and traditional contacts within the city distribution systems.

The street pusher. Street pushers are addicts who sell heroin to support their dependency. Upon receipt of his bundle(s), a street pusher divides the capsules into ten or fifteen capsule lots which he re-wraps in

* In Canada, street doses of heroin are usually packaged in No. 5 capsules.

† City distributors may also sell pure heroin to middlemen in bulk ounces for around \$2,400 per ounce. In this case, the additional risks and expenses involved in capping are transferred from the city distributor to the middleman.

individual condoms or balloons. When he is ready to sell his heroin, he places the balloon or condom in his mouth to allow him to swallow it if he is approached by police officers, and proceeds to the local addict hang-out.

Many of those who peddle heroin receive the substance on consignment; generally, they are required to give the consignor (the middleman) \$12 for every capsule they sell at \$15. At least some street peddlers pay cash for their bundles and are thereby able to purchase them at a somewhat lower per-capsule price that seldom falls below ten dollars. Sales of 50 to 75 capsules daily are not uncommon. While a per-capsule mark-up of between three and five dollars would appear to make street-level heroin peddling a profitable venture, wherever there has been an illicit heroin market it has been noted that street pushers make only slight profits. Most of the potential profits are absorbed by the street pushers' own drug use. As Lyle has described the situation:

Among addict dealers on the street, no one makes money for long. It's just an endless, hard scramble, up one day and down the next. . . . The addict buys what he can, uses what he needs, sells the rest, if any.⁶⁰

Heroin users do not see anything very special about drug selling or drug sellers. One reason for this lack of special status is that 'putting out stuff' is in no way an exotic activity since at one time or another most heroin users of any tenure have themselves sold heroin. And secondly, heroin users are, by necessity, eminently practical people and tend to talk about, evaluate, and generally see a variety of activities strictly in terms of their potential to raise money for the purchase of heroin. Heroin peddling is one way of making it through the world and, for a number of reasons, a preferred way. For one thing, it obviously provides one with easy and somewhat cheaper access to heroin itself. Furthermore, heroin peddling is seen as safer and slightly more enjoyable than other ways of making the necessary money to support such drug use.

The street-level heroin peddler represents the lowest level of a stratified organization set up specifically to distribute heroin. Consequently, the street pusher is subject to the conditions of distribution determined by those—usually the middleman or his agent—who directly supply him with this drug. One of the things controlled is access to the occupation of street-level heroin peddling. Like all businesses—legitimate or otherwise—heroin-distributing syndicates seek reliable employees, at all levels, who can do their job and do it reasonably well. Consequently, it is virtually impossible for one to become a street pusher unless one is not only a user, but a user of some tenure in the scene since one must have been around long enough to know and be trusted by a local middleman. Regular street peddling, then, not only implies heroin use but extensive involvement in the heroin scene as well.

The Scope of the Canadian Distribution System

In terms of the international market, Canada is far more significant as a heroin transfer centre than as a consumer market.^{125, 137, 149} The great bulk of the heroin entering Canada is destined for the American addict population. During the 1971/72 fiscal year, heroin seizures in Canada amounted to 88.7 kilograms* compared to 26.5 kilograms in 1970/71 and 17.2 kilograms in 1969/70. In the first half of the latest fiscal year (April 1 to September 30, 1972) an additional 12 kilograms of heroin were seized in Canada and 45.8 kilograms were seized elsewhere ". . . as a direct result of [R.C.M. Police] assistance and co-operation with authorities in other countries".¹⁶⁵

Authorities show wide differences in their estimates of total heroin use in Canada. The R.C.M. Police, for example, estimate that ". . . approximately 76 kilograms of heroin are consumed in Canada each year".¹⁶⁵ However, on the basis of consumption norms used by the American Bureau of Narcotics and Dangerous Drugs,³² it appears that Canada's addict and user population consumes closer to 300 kilograms of heroin a year. This estimate is based on the assumption that Canada's addict population is approximately 15,000.

To understand the intricacies of the Canadian heroin distribution system it is necessary to examine the sources, suppliers, distribution networks and consumption patterns at the regional level, drawing whatever national and international implications the data warrants. For the purposes of this analysis, Canada has been divided into five regions: the Atlantic Provinces, Quebec, Ontario, the Prairie Provinces and British Columbia.

A REGIONAL DESCRIPTION OF HEROIN DISTRIBUTION

The Atlantic Provinces

No large-scale heroin operation has yet been uncovered in the Atlantic Provinces.^{68, 149} However, Halifax, as a year-round port and terminal for international flights, probably has been used by both Canadian and American importers as a port of entry for heroin shipments.

The Atlantic Provinces have never had a significant heroin addict population, and even now arrests for heroin offences are extremely rare. A Commission field study of drug use in the Atlantic Provinces, conducted in May 1972, found that heroin was not regularly available although occasional supplies do reach Halifax's small addict and user population and infrequently appear in other large Maritime cities.⁵⁸ Methadone was easily available in the Halifax drug scene in late 1971 and the first half of 1972 as a result of diversion of licit methadone stocks (see B.2 *Opiate Narcotics*, "Legal Sources

* It should be noted, however, that 50 of these 88.7 kilograms were confiscated in one seizure.⁸⁹

and Illegal Distribution", above). The implementation of the methadone control program in June 1972, however, significantly reduced the street availability of this drug.

Quebec

Outside of Montreal, no large-scale heroin distribution operations have been reported in Quebec.¹⁴⁹ Montreal became the centre of Canadian heroin importing and one of the major North American ports of entry as a result of the Chinese syndicates' failure to re-establish their trans-Pacific distribution system after the Second World War,³⁸ changes in the control of heroin refinement in Europe,^{59, 99} and increased customs inspections and narcotics law enforcement on the American east coast.⁵⁹ However, Montreal's importance as a continental trans-shipment centre has declined with the development of new international sources of heroin and a more diffuse control over the American east coast market.³¹

In 1971 it was reported that two or three Montreal syndicates were importing heroin from French-Corsican suppliers in France.^{137, 149} These importers paid between \$6,000 and \$8,000 per kilogram, depending on the size of the purchase and the quality of the heroin.¹³⁷ They supplied numerous city distributors in New York and Canadian city distributors in Toronto, Winnipeg and Vancouver.* Due to the relatively small quantities purchased, Canadian distributors paid about \$17,000 per kilogram whereas American large-volume buyers paid between \$12,000 and \$14,000.^{137, 147, 149}

The heroin importer realizes a gross profit of between 70 and 140 per cent on his initial investment for an operation that might last a month and involves minimal personal and financial risk. The majority of the heroin is brought through customs in freight or by couriers arriving on international flights originating in Western Europe.¹³⁷ Whenever possible, an importer will use couriers with informal or formal customs immunity, such as diplomats or members of airline crews.^{31, 59, 99}

The R.C.M. Police have indicated that, prior to 1972, Montreal has never had a large opiate-using population.^{125, 149} In the early and mid-1960s street heroin was readily available in Montreal at seven or eight dollars per capsule. This relatively inexpensive source attracted lower-level distributors from Toronto and smaller consumer centres who did not have the criminal contacts to buy at the higher levels of distribution in their own cities. These dealers would drive to Montreal, pick up 100 to 200 capsules at eight dollars each, and resell them to street addicts for \$15 or \$20 per capsule.¹⁴⁹

* There are conflicting opinions concerning Vancouver's present source of heroin. The R.C.M. Police indicate that Vancouver is still largely supplied with Middle Eastern-European heroin from Montreal,¹⁴⁶ while the American B.N.D.D. and some newspaper reports suggest that Vancouver is now primarily supplied by local distributors who import Southeast Asian heroin from Chinese refiners and traffickers.^{32, 40, 150} Although it is known that large quantities of Southeast Asian heroin are smuggled into Vancouver for the American market, there is no reliable estimate of the quantity that remains in Vancouver for local distribution.³²

In the late 1960s supplies of heroin for local consumption became very erratic and the Montreal addict and user population declined significantly. By early 1972, however, heroin was once again generally available in Montreal and methadone, as a consequence of indiscriminate prescribing, could be easily purchased on the street for around one dollar per 10-milligram tablet. Illicit methadone sources have declined since the implementation of the more rigorous prescribing regulations of June 1972, but heroin, at that time, was more readily available to Montreal's using population than at any other time in recent history.^{56, 58} Hull has also witnessed increased street availability of heroin over the past two years.⁵⁸

Ontario

In 1971 the heroin distribution system in Ontario was dominated by one importer-distributor and several city distributors in the province's largest urban centres. Ontario heroin-importing operations are generally far smaller than those in Montreal and tend to serve only the Canadian market. Ontario's largest importing operation was ended by police arrests in 1961, and since then Ontario heroin traffickers have concentrated on distribution as opposed to importation. Although several Ontario city distribution operations have been prosecuted over the past decade, police efforts to interrupt the major city distributors in Toronto have not, as yet, been successful. One of these operations is controlled by local Italian syndicates with Mafia connections in Italy and the American east coast. A second is composed of French Canadians with supply contacts in Montreal and France.^{67, 149} In the past few years several smaller city distributors have also established operations in the Toronto area.

Traditionally Toronto and Hamilton were the only Ontario cities with large enough using populations to support a permanent distribution network. In recent years, however, regular heroin distribution systems have emerged in the Ottawa-Hull area and throughout southern Ontario. These smaller markets are chiefly supplied by syndicate contacts in Montreal and Toronto, intermittent mailings from abroad, and small-scale smuggling of heroin street-doses from Buffalo, Detroit and other nearby American cities. Lower-level independent heroin dealers in Toronto and Hamilton have, since the mid-1960s, also purchased small supplies in American border cities.^{58, 67, 149}

Toronto has by far the largest addict population in Ontario, and is second only to Vancouver nationally. Until 1969 the heroin street scene was centred at the corners of Dundas and Pembroke Streets in the heart of the 'red light' district and in Toronto's Chinatown.^{67, 149} Over the past few years, however, the street scene has diffused throughout Toronto's downtown district. A new street scene has emerged around the Keele Street-St. Clair, 'Little Italy' area, and there is some evidence of occasional suburban youth involvement in this 'ghetto' market. Toronto's user and addict population has significantly increased since 1970; most of these new heroin users have had extensive multi-drug use experience and many are first generation Canadians

whose traditional parental values conflict with the contemporary urban life style that culturally characterizes Toronto.^{58, 67, 149}

It is also during the past few years that the smaller heroin-using population of southern Ontario has evolved. Windsor, London, Fort Erie, Sarnia, St. Catherine's, Stratford, Hamilton-Burlington and Chatham now have small pockets of regular and occasional users, and heroin supplies to these cities are constant, although subject to quality and price fluctuations. Ottawa's heroin users are part of the Ottawa-Hull market which is supplied by middlemen contacts in both Toronto and Montreal. This population, as well, has only developed since 1971 and is less stable than those in southern Ontario.⁵⁸

The Prairie Provinces

There are no major heroin-importing operations in the Prairie Provinces; Manitoba is supplied by Montreal importers, Alberta by Vancouver city distributors, and Saskatchewan (which has no regular supply) by lower-level traffickers in Vancouver, Edmonton and Regina.^{58, 97, 149} The heroin-using populations in all three provinces have grown in the past few years with the most marked increase occurring in Alberta—particularly in Edmonton.⁵⁸

Heroin use in Manitoba is concentrated in Winnipeg where a traditional, small street-addict population has recently been augmented by younger users with extensive multi-drug experience. Saskatchewan has a relatively small number of heroin addicts and users who primarily reside in Regina and Saskatoon. Lax prescribing resulted in easy street availability of methadone in Saskatchewan, but this situation has changed since the federal methadone regulations of June 1972.

The Alberta heroin-using scenes are centred in Edmonton and Calgary, with Edmonton having the largest addict concentration in the Prairie provinces. Supplies to both cities' traditional heroin-using populations are regular, although it is not uncommon for newer addicts to pool their funds so that one of their members can travel to Vancouver to purchase heroin for the entire group to share. It appears, consequently, that Alberta's traditional and newer addicts are not buying heroin from the same Vancouver sources.⁵⁸

British Columbia

For the past few years, four or five city distributors have been operating in the Vancouver heroin market.^{146, 147} Most of their heroin is apparently purchased from Montreal importers, but some of these distributors occasionally import heroin directly from Southeast Asia and, less frequently, from Mexico.¹⁴⁷ Recently there have been reports of Chinese syndicates importing large quantities of Southeast Asian heroin into Vancouver. While much of this heroin is destined for American distributors, the Commission has recently been informed that increasing proportions of Vancouver's street heroin is of Southeast Asian origin and is locally distributed by Chinese traffickers.^{32,}

New syndicates have a particularly difficult time establishing in Vancouver as they do not know the scene, and must learn who to trust and how the police operate. Consequently, the most successful Vancouver distributing operations are composed of local Caucasians. Some local Chinese and out-of-province Italian and French syndicates have suffered major arrests within months of their attempts to establish city distributor operations in the Vancouver area.¹⁴⁷

Vancouver is the centre of heroin consumption and distribution in British Columbia. Although no major heroin-importing operation has yet been discovered outside of Vancouver, numerous lower-level distributors have, within the past few years, developed street-dealing operations throughout the province, including such cities as Victoria, Nanaimo, Prince George, Prince Rupert, Kamloops and Surrey. The size and stability of these new markets cannot yet be determined. In addition to supplying these smaller British Columbia markets, Vancouver is the primary source of the heroin consumed in Edmonton and Calgary. The middlemen in these cities apparently buy directly from Vancouver city distributors.^{58, 147, 149} The Vancouver street scene has undergone substantial changes in the last four or five years. In the late 1960s the local scene was restricted to the Main and Hastings area (called 'the corner') which was reputed to contain 60 per cent of all Canadian heroin addicts.¹²² Other substantial heroin street scenes have since developed in the Granville and Davies area and in the Fourth and Arbutus area. The first two areas are still dominated by traditional heroin addicts, while the third is composed almost exclusively of what the police describe as 'hippie'-type users.¹⁴⁷

Street pushers ordinarily deal heroin in cafés or other relatively public locations. However, as police pressure on these three street scenes increased, the heroin trade tended to diffuse to small-scale 'house operations' throughout the city. By dealing from private homes street pushers are able to temporarily avoid police surveillance. Police efforts to close these house operations have succeeded in driving some of the trade back to the traditional street corners, but the trend to a diversification of outlets continues. A significant number of former cannabis and hallucinogen distributors now deal in heroin, and access to heroin at the street level is far freer than it was several years ago.^{58, 147}

The heroin addict and user population has been increasing throughout British Columbia since the beginning of this decade. British Columbia heroin is generally considered the most potent in Canada and it is readily available in almost all urban centres in the province. Instances of diversion of methadone to illicit street channels have been reduced since the June 1972 federal methadone prescribing regulations.⁵⁸

THE ECONOMICS OF THE DISTRIBUTION SYSTEM

Large-scale heroin importation and distribution is a major economic enterprise requiring substantial capital. The profits at this level of distribution

are enormous, particularly if the operators can avoid prosecution. However, some of the dealers' costs are extremely difficult to account for, such as legal fees, thefts by other criminals, internal thefts by employees, loss through police seizures, and the salaries of specialized employees.¹⁴⁷ One cannot simply view the economics of heroin distribution in terms of a perpetually successful enterprise; there is a very real possibility of spending ten to fifteen years in prison or being murdered by one's associates. Although both upper-level distributors and their entire syndicates have been successfully prosecuted, the Canadian distribution system as a whole has remained intact since 1962. The elimination of individuals and syndicates provides continuous opportunities for upward mobility among aspiring dealers at the middleman level. This situation also attracts established criminals from non-drug fields.

Law enforcement efforts aimed at upper-level distributors are more successful in raising their financial risks than their risks of prosecution. Police pressure causes these key distributors to specialize their operations by adding more independent levels to the distribution chain. The added cost of this increased division of labour is passed on to the ultimate consumer, and the relative effectiveness of enforcement and these distributors' profits remain the same while the costs of law enforcement continue to rise.

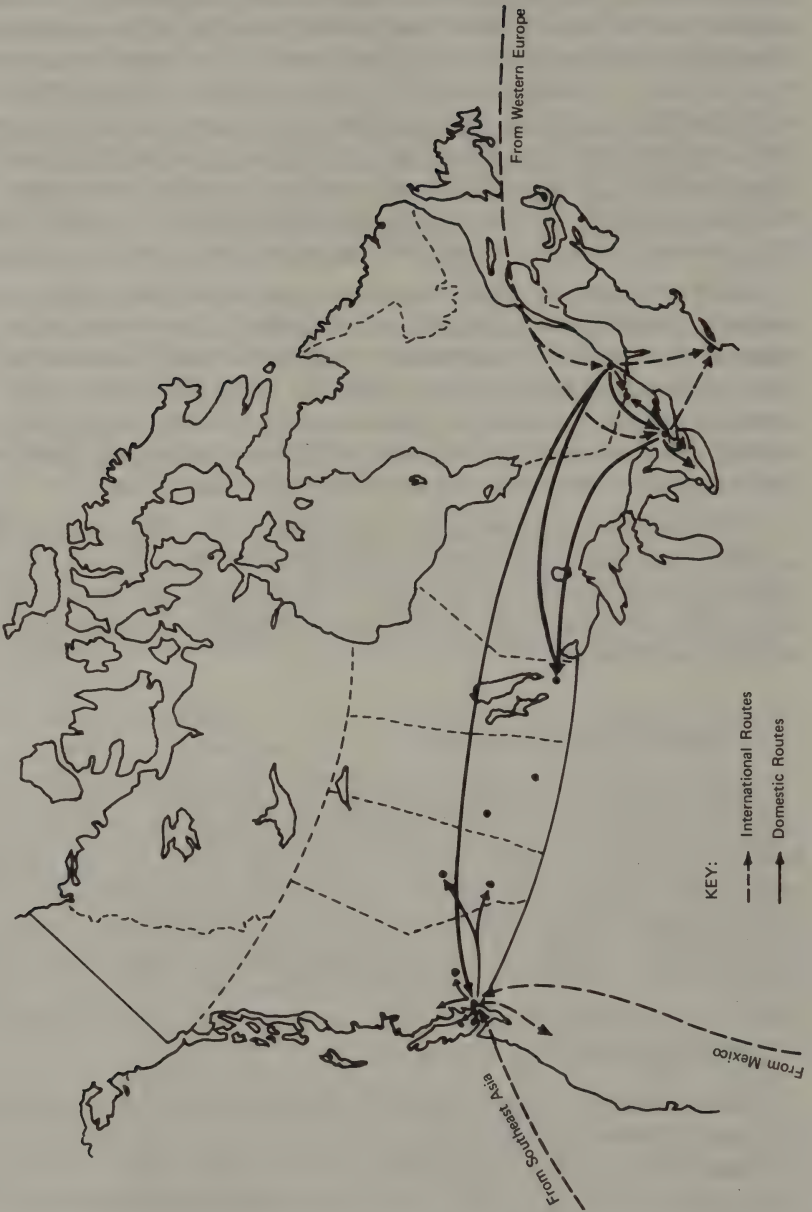
As one approaches the middle and lower levels of distribution, the risk of arrest rises sharply and the potential for profit decreases. At the middleman level of distribution the returns are still substantial considering the initial investment. At the street level, however, the profits are small and arrest is virtually inevitable.¹⁴⁷

SUMMARY AND CONCLUSION

Once heroin enters Canada the bulk of it is tightly controlled by a small number of importers and city distributor syndicates. Most persons at these levels have extensive criminal records and are known to the police. The organization and management of these syndicates are specifically designed to avoid prosecution as those in control have the financial and criminal contacts necessary to utilize all legal and illegal means of protecting themselves. Even the arrests of major importers or city distributors have only temporary effects on the distribution system; there are more than enough aspiring dealers to take the place of those arrested.

The number of market participants increases dramatically at the middleman level. These levels of distribution have changed substantially in the last five years as the number of outlets and centres of consumption have increased and spread out. In the early 1960s there was no significant heroin trade outside of Montreal, Toronto, Winnipeg and Vancouver. Street distribution in these cities was highly centralized in the downtown areas. In order to obtain heroin, a user would have to go to a specific area to 'score' (purchase) and, in so doing, was likely to come into contact with the police.

FIGURE B.7
MAJOR CANADIAN HEROIN ROUTES



Within the major heroin-using cities the trade has diffused from these traditional dealing areas with the development of a greater number of outlets in various parts of each city. The recent establishment of house operations has further decentralized the trade. This decentralization is in large part an attempt to avoid police pressure at the traditional dealing centres and, to a lesser extent, an effort to service new populations of users. Many of these new users are unknown to the police, their pattern of heroin consumption is often sporadic, and they are not as readily identifiable as are the traditional addicts. These new users have not generally established stable distribution systems of their own, and will not be able to do so until they develop the necessary financial and criminal bases to sustain such operations. It is increasingly difficult for the police to keep up with the rapid development of new sources, outlets, and users. The evolution of small pockets of heroin use in smaller urban centres further complicates law enforcement efforts to curtail heroin distribution.

Present law enforcement efforts have resulted in significant seizures and arrests. The police have been able to keep the price of heroin fairly high and thus somewhat limit its availability. Despite these gains, heroin is more readily available than it was five years ago, and heroin use is increasing. The economics of heroin distribution and the wide range of legal and illegal methods of evading prosecution give the system tremendous flexibility.

B.3 AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

LEGAL SOURCES AND LEGAL DISTRIBUTION

The distribution of amphetamine (including dextroamphetamine), benzphetamine, methamphetamine, phenmetrazine, phendimetrazine, and their salts, is controlled by the *Food and Drugs Act* and the *Food and Drug Regulations*. These drugs are listed in Schedule G of the Act in which they are referred to as "controlled drugs". Prior to 1973, distribution of these amphetamine and amphetamine-like drugs was regulated in the same fashion as the barbiturates (see B.7 *Minor Tranquilizers, Barbiturates and Other Sedative-Hypnotics*, "Legal Sources and Legal Distribution", below). However, due to "the over-prescribing of these drugs by some medical practitioners . . . [and] concern about the public health implications of amphetamine abuse", the *Food and Drug Regulations* were recently amended with new and stricter provisions regarding amphetamine, benzphetamine, methamphetamine, phenmetrazine and phendimetrazine coming into effect on January 1, 1973.⁶ These drugs are now referred to as "designated drugs" which distinguishes them from the other "controlled drugs" in the Regulations. The amended Regulations restrict the right to "administer" (i.e., prescribe, give, sell, furnish, distribute or deliver) designated drugs to medical practitioners solely for the treatment of narcolepsy, hyperkinetic disorders in children, mental retardation (minimal brain dysfunction), epilepsy, Parkinsonism and hypotensive states

associated with anesthesia. Animals may be treated with these drugs for the depression of cardiac and respiratory centres.

The Minister of National Health and Welfare may, however, authorize a practitioner to administer a designated drug for other purposes if he considers such use to be "in the public interest or the interest of science". The newly restricted conditions for which amphetamines may be prescribed are to be periodically reviewed by "advisory committees" appointed by the medical profession, and may be altered "if the evidence indicates it to be advisable".⁴

In all cases where a medical practitioner administers a designated drug to a patient, he must notify the Department of National Health and Welfare of the name, age, sex and address of the patient, or, where the patient is an animal, the address of the animal's owner, the name, dosage and dose form of the designated drug, the date the drug was first administered and the practitioner's name and address. If it is the practitioner's intention that the "administered" dosage be consumed within a 30-day period, he must send his "notification" to the Department of National Health and Welfare within 33 days of the first administration of the drug. If the drug is intended to be used for therapy exceeding 30 days, the prescribing practitioner must also submit the name and address of another practitioner who has confirmed the diagnosis of the patient's illness, and he is to include the date of this confirmation in his official notification which must be sent to the Minister of National Health and Welfare within ten days of the confirming consultation.

The *Food and Drug Regulations* contain provisions dealing with the labelling of designated drugs and prohibit their manufacture, sale, import and export by anyone other than an authorized licensed dealer. Hospitals are prohibited from dispensing or administering designated drugs without the authorization or prescription of a medical practitioner. Pharmacists may supply these drugs to hospitals and, upon receipt of a written or verified verbal prescription or order, to private persons. Licensed dealers, pharmacists and hospitals must keep records of all Schedule G drug transactions (including designated drugs) for at least two years in a form which can be readily inspected, and must notify the Minister of National Health and Welfare of any thefts or losses of these drugs.

The simple possession of designated drugs is not prohibited by the *Food and Drugs Act*; however, possession for the purpose of trafficking is prohibited by the Act.

Figures regarding the licit manufacture and sale of amphetamines between 1966 and 1972 are presented in Table B.8. There are no parallel figures for phenmetrazine (Preludin®) and phendimetrazine (Dietrol®) as they were not added to Schedule G of the Act until November 1, 1971. Prior to this date, these amphetamine-like drugs were listed in Schedule F of the *Food and Drug Regulations* and, consequently, the official estimated consumption of these specific substances was unavailable as the importation,

manufacture and distribution of Schedule F drugs are not routinely monitored by any governmental control agency.*³¹ However, pharmaceutical market survey estimates of phenmetrazine sales between 1966 and 1972 are available, and these data—derived from a stratified random sample of Canadian drug stores, ‘discount houses’ and hospitals—are presented in Tables B.5 and B.6.

Other amphetamine-like drugs, such as diethylpropion (Tenuate®), pipradrol (Meratran®), and methylphenidate (Ritalin®), are listed in Schedule F of the *Food and Drug Regulations*, and, consequently, official consumption estimates are not available for these substances. Pharmaceutical market survey estimates of methylphenidate sales to drug retailers and hospitals have, however, been provided to the Commission, and these data are presented in Tables B.5 and B.6. The laws regulating the distribution of these drugs are the same as those which govern the minor tranquilizers and non-barbiturate sedative-hypnotics (see B.7 *Minor Tranquilizers, Barbiturates and Other Sedative-Hypnotics*, “Legal Sources and Legal Distribution”, below). The simple possession of these amphetamine-like drugs is not prohibited by the *Food and Drugs Act* or its *Regulations*, but they may only be sold to the general public on a doctor’s prescription.

TABLE B.5

ESTIMATED LICIT SALES OF PHENMETRAZINE AND
METHYLPHENIDATE TO DRUG STORES AND HOSPITALS,
IN KILOGRAMS, FOR THE YEARS 1966 THROUGH 1972*

Year	Phenmetrazine	Methylphenidate
1966.....	585.0	51.0
1967.....	582.5	58.0
1968.....	545.0	71.0
1969.....	617.5	104.0
1970.....	552.5	94.0
1971.....	512.5	122.0
1972.....	302.5	123.0

* Figures courtesy of the Canadian pharmaceutical industry and Intercontinental Medical Statistics. As ‘discount houses’ were not surveyed prior to 1971, the 1966 to 1970 data are thought to under-project sales of these drugs by approximately eight per cent.

Apart from phendimetrazine, all of the amphetamine and amphetamine-like drugs legally marketed in Canada are imported into this country in bulk or ‘finished’ form and then further processed and packaged for domestic distribution.

* The Bureau of Dangerous Drugs’ figures for 1972 show an estimated consumption of 30.2 kilograms of phenmetrazine and 3,332.3 kilograms of phendimetrazine.⁵⁸

TABLE B.6

ESTIMATED LICIT SALES OF PHENMETRAZINE AND METHYLPHENIDATE, BY DOSAGE
UNITS, FOR THE YEARS 1966 THROUGH 1972*

(in millions of capsules or tablets)

Year	Phenmetrazine			Methylphenidate	
	25 mg.	50 mg.	75 mg.	10 mg.	20 mg.
1966.....	12.1	1.0	3.1	4.5	.3
1967.....	10.9	1.4	3.2	5.0	.4
1968.....	9.8	1.2	3.2	5.3	.9
1969.....	11.0	1.3	3.7	6.4	2.0
1970.....	10.6	1.1	3.1	7.8	.8
1971.....	8.3	1.3	3.2	10.4	.9
1972.....	4.2	.8	2.1	9.9	1.2

* Figures courtesy of the Canadian pharmaceutical industry and Intercontinental Medical Statistics. As 'discount houses' were not surveyed prior to 1971, the 1966 to 1970 data are thought to under-project sales of these drugs by approximately eight per cent.

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

While 'speed freaks' have their own sources of illicitly manufactured stimulants (see "Illegal Sources and Illegal Distribution" below), the majority of the amphetamine and amphetamine-like drugs used non-medically or without benefit of prescription in Canada are legally manufactured by authorized pharmaceutical companies. Despite these companies' exercise of stringent precautionary measures, diversion of these substances to illicit channels of distribution still occurs. The extent of this diversion, however, is difficult to estimate. In the United States it has been calculated that between 8 and 12 billion amphetamine doses were manufactured annually during the 1960s,^{18, 42, 46, 50} and that between 30 and 50 per cent of this production was diverted to the illicit amphetamine market.^{25, 42} These total production figures represented sufficient amphetamine to provide every American with between 35 and 60 five-milligram doses every year, and led the United States House of Representatives Select Committee on Crime to note that "... the largest single source of speed [amphetamine] is the overproduction by legal manufacturers."⁵⁰

The over-supply of amphetamines does not appear to be as critical in Canada as in the United States. In fact, the per capita consumption of licitly manufactured amphetamines (as based on actual sales to retailers and

* In response to such investigations, the United States Bureau of Narcotics and Dangerous Drugs established an American 1972 amphetamine production quota at approximately 80 per cent below the 1971 production level.^{8, 43, 49}

hospitals) has declined by approximately 74 per cent between 1966 and 1972. Table B.7 illustrates the approximate per capita consumption of amphetamine drugs in Canada over this seven-year period for persons fifteen years of age and over.*

This decreased production of legitimate amphetamines has probably resulted in fewer opportunities for illicit diversion, but there is still a signifi-

TABLE B.7

PER CAPITA CONSUMPTION OF AMPHETAMINES BETWEEN 1966 AND 1972

Year	—	Total
1966	Population (15 & over, in thousands).....	13,423
	Consumption (kilograms)†.....	412.9
	Per capita consumption (mgs.).....	30.8
1967	Population (15 & over, in thousands).....	13,812
	Consumption (kilograms)†.....	378.9
	Per capita consumption (mgs.).....	27.4
1968	Population (15 & over, in thousands).....	14,179
	Consumption (kilograms)†.....	303.1
	Per capita consumption (mgs.).....	21.4
1969	Population (15 & over, in thousands).....	14,461
	Consumption (kilograms)†.....	270.0
	Per capita consumption (mgs.).....	18.7
1970	Population (15 & over, in thousands).....	14,814
	Consumption (kilograms)†.....	260.0
	Per capita consumption (mgs.).....	17.6
1971	Population (15 & over, in thousands).....	15,159
	Consumption (kilograms)†.....	208.0
	Per capita consumption (mgs.).....	13.7
1972	Population (15 & over, in thousands).....	15,508
	Consumption (kilograms)†.....	125.0*
	Per capita consumption (mgs.).....	8.1

* Preliminary estimate only; actual sales for first nine months of 1972 were 95.1 kilograms.

† Actual sales to retailers and hospitals as reported by the Pharmaceutical Manufacturers Association of Canada.

cant difference (as illustrated in Table B.8) between the amount of amphetamine available for medical use and the amount actually sold in Canada for the years 1966 through 1972. In this seven-year period nearly twice as much amphetamine was manufactured in Canada for domestic medical use (3,495.9 kilograms) as was actually sold to hospitals and retailers (1,958.0 kilograms). The cumulative difference between these figures (1,537.9 kilo-

* The relatively small amount of amphetamine annually prescribed to hyperkinetic children has not been separated out of Table B.7. For conversion purposes, a usual single dose of amphetamine (including dextroamphetamine) is 10 milligrams, while the usual single dose of methamphetamine (which accounts for about one-sixth of legal Canadian amphetamines consumption) is five milligrams.

TABLE B.8
LICIT MANUFACTURE AND SALES OF AMPHETAMINES AND THE DIFFERENCES BETWEEN THEM, IN KILOGRAMS,
FOR THE YEARS 1966 THROUGH 1972

Year	Imports*	Exports*	Conversion†	Minimum Available for Medical Use†	Actual Sales§	Differences
1966.....	1,062.8	25.1	—	1,037.7	412.9	624.8
1967.....	771.1	10.8	65.0	695.3	378.9	316.4
1968.....	585.6	30.0	65.0	490.6	303.2	187.4
1969.....	810.3	21.0	165.0	624.4	270.0	354.4
1970.....	591.9	32.5	250.0	309.3	260.0	49.3
1971.....	801.9	5.1	500.0	296.9	208.0	88.9
1972.....	74.3	32.6	—	41.7	125.0#	-83.3**
Totals.....	4,697.9	157.1	1,045.0	3,495.9	1,958.0	1,537.9

* Bureau of Dangerous Drugs figures.

† 'Imports' minus 'exports' and 'conversion'; does not include inventory prior to 1966.

‡ 'Conversion' to AN-1 (Aponuron), a central nervous system stimulant, which is then legally exported to West Germany.

§ 'Actual sales' to retailers and hospitals. Figures courtesy of the Pharmaceutical Manufacturers Association of Canada.

|| 'Differences' between the amount of amphetamine 'available for medical use' and the 'actual sales' of these drugs.

Preliminary estimate only; actual sales for first nine months of 1972 were 95.1 kilograms.

**Sales of pre-1972 manufacturers' inventories account for 'actual sales' being higher than the 'minimum available for medical use' in 1972.

grams) represents, according to the Pharmaceutical Manufacturers Association of Canada, "...imported amphetamine substances which are in the various levels or stages of inventory".¹⁹ Their very existence, however, provides the opportunities for illicit diversion at various manufacturing, refining, storage and transfer stages.

In the recent past, the amphetamine-like drugs—particularly Preludin® (phenmetrazine) and Ritalin® (methylphenidate)—were more widely available in some Canadian illicit drug markets than any of the pharmaceutical amphetamine preparations. Phenmetrazine was not transferred from Schedule F of the *Food and Drug Regulations* to Schedule G of the *Food and Drugs Act* until November 1, 1971. Consequently, phenmetrazine loss and theft data prior to this date are unobtainable as losses and thefts of Schedule F drugs are not routinely monitored. However, growing medical concern about the use of amphetamines and the easy street availability of Preludin® and Ritalin® suggested increased diversion of these substances. Importation, sales, thefts and losses of methylphenidate remain officially unmonitored, and adequate phenmetrazine-related statistics have not yet been compiled.*

In the United States, legally manufactured amphetamine and amphetamine-like drugs have been diverted to illicit channels of distribution through the smuggling of legally exported stimulants back into the United States (chiefly from Mexico), the ordering of drugs from mail-order drug wholesalers that do not verify their customers' credentials, and occasional instances of physicians trafficking in large quantities of amphetamines without prescriptions.^{9, 15, 24, 33, 34, 41, 50, 52} Cases of American physicians having operated "anti-obesity clinics" from which they routinely distributed amphetamines, without examinations or follow-up observations, have also been noted.^{25, 44}

Diversion on the scale recorded in the United States has not been documented in Canada, although several very large seizures of legally produced stimulants (one involving 54,000 Preludins®³⁸ and a second involving 12,200 Dexedrine® tablets¹) have been reported within the past two years. Besides this diversion (the sources for which remain unknown), amphetamine and amphetamine-like drugs have been obtained through careless or excessive prescribing on the part of some physicians, visits to several doctors, the refilling of unauthorized prescriptions, the forging or altering of prescription forms, and relatively small thefts from doctors' and pharmacists' offices.^{† 7, 18} Depending on the initial size of the illicit supply, these drugs are subdivided for wholesale and retail sales, eventually reaching the street at between ten and fifty cents a pill. Most of those amphetamine and amphetamine-like drugs obtained through fraudulent prescriptions, however, are either used by the person who procured them or freely given away to friends.

* Reported thefts of phenmetrazine totalled 145 grams for the first six months of 1972.³⁰

† Theft of legally manufactured amphetamines rose through the 1960s but declined slightly in 1971. According to the Bureau of Dangerous Drugs, 61 grams were reported stolen in 1966, 153 grams in 1967, 295 grams in 1968, 310 grams in 1969, 582 grams in 1970, and 424 grams in 1971.^{27, 29, 30} The accumulated reported thefts for this six-year period is equivalent to almost 200,000 ten-milligram doses of amphetamine.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

Several seizures of counterfeit amphetamine pills and ampule-filling machinery have been documented in the United States.^{17, 46} However, most American illicitly manufactured amphetamine—and apparently all of that prepared in Canada—is available solely in a powdered form intended for the ‘speed’ market. The drug of choice is methamphetamine,* and the illegal laboratories which produce this substance are ordinarily located in the vicinity of a large speed-using clientele. Thus, 12 of 21 illicit methamphetamine laboratories seized by agents of the United States Bureau of Narcotics and Dangerous Drugs between 1966 and 1969 were in the State of California, serving the Haight-Ashbury speed scene.¹⁷ Similarly, Canadian ‘meth’ laboratories are thought to operate primarily in the Toronto area.

A speed laboratory requires a skilled (although not necessarily professional) chemist, a dependable source for the chemical precursors of methamphetamine, the requisite equipment to manufacture the drug, a relatively secure location and a modest capital outlay. The relative ease with which methamphetamine can be produced has led to the emergence of laboratories at various levels of sophistication. According to Roger Smith:

A speed laboratory may range from a well organized, highly efficient operation, capable of producing five to twenty-five pounds of speed per week consistently, to a kitchen or bathroom in a small apartment, producing less than an ounce a week, to a college chemistry laboratory where a student produces speed only occasionally, when he needs money or feels the chances of detection are slight.⁴⁸

The smaller laboratories may only involve one or two persons who produce methamphetamine (at a cost of about \$200 a pound) and sell it themselves in ounces to lower-level dealers. In the larger operations, however, the methamphetamine will only cost around \$30 to \$50 a pound to manufacture and will be sold in multi-pound lots. The chemist (who is usually hired by those sponsoring the venture) will probably have little or nothing to do with the selling of the drug.

In 1970, primary distributors were likely to pay between \$500 and \$600 a pound for large speed shipments or between \$700 and \$1,000 for individual pounds.† Some of these purchases entered the local market and others were

* Over 97 per cent of the seized amphetamine material destroyed by the Bureau of Dangerous Drugs during 1971 was methamphetamine.²⁸ Seizures of all amphetamines have risen dramatically since the mid-sixties. According to the Bureau of Dangerous Drugs, 14,522 seized grams were officially destroyed between January 1966 and July 1972.²⁸ The accumulated seizures for this six- and one half-year period is equivalent to nearly 3,000,000 five-milligram doses of methamphetamine. Furthermore, 3,200 grams of seized phenmetrazine (an amphetamine-like drug) were destroyed between January and July of 1972, and an additional 70 pounds (approximately 32,000 grams) of this drug were reported seized during one police operation in Toronto in January 1973.¹² This single Toronto seizure is equivalent to more than one-third of all the phenmetrazine legally imported into Canada for domestic processing and distribution during the previous year. The usual single dose of phenmetrazine is 25 milligrams (i.e., one-fortieth of a gram).

† Illicit methamphetamine prices have risen dramatically over the past few years and are presently between 50 and 100 per cent higher than those quoted in this section.

transported (often by motorcycle gang members, many of whom are heavily involved in speed dealing) to secondary speed centres that were not serviced by their own laboratories. Much of the speed in Montreal, for example, came from Toronto or a few cities in the north eastern United States, and some of this speed was then carried to Quebec City and Halifax. The methamphetamine was then subdivided from pounds into quarter-pounds which, depending on the demand, the quality of the speed, and the distance from its manufacturing source, sold for between \$250 and \$400 each. True ounces were then sold for between \$120 and \$150 to lower-level dealers (usually speed users themselves) who diluted the drug with a variety of substances (such as dextrose or monosodium glutamate) and sold 'half-ounces' to street dealers for between \$75 and \$85 and 'quarter-ounces' for approximately \$40 or \$45. The street dealers (who are all 'speeders') diluted the speed further and then sold it in 'grams' or 'spoons' (\$10 to \$25), 'half-grams' (\$5 to \$15) and 'hits' (one, two or three dollars) to members of the using community.* Street dealers rarely realize their potential profit as they personally consume much of their dealing supply and, consequently, are considered fortunate to return their initial investment. As Smith has noted, "as in almost all illicit marketplaces, it is the top level personnel who realize substantial profits with minimal risks, and the individuals enmeshed in the deviant culture who assume the most immediate risks with little compensation."⁴⁸

Credit arrangements exist at the top levels of the methamphetamine distribution system, but, at the lower levels, a down payment is a necessary prerequisite for credit advancement—and even then it is only extended to those few persons considered trustworthy. There is no credit in time of speed famines and cash is always demanded if the quantity sold is under one-quarter ounce. Small amounts of speed, however, may be purchased with valuable—and usually stolen—articles that are easily resalable.

Some speed distribution networks are highly organized enterprises with a stratified dealing structure, territorial rights and hired debt collectors.† However, these networks are usually relatively unstable below the quarter-ounce distribution level and street dealers are continually being replaced or are involved in the dissolution or re-establishment of dealing partnerships.

It is difficult to estimate the amount of speed consumed in Canada, but a minimum of between ten and twenty pounds a week does not appear unreasonable. If divided into 'grams' for street sales, this quantity of methamphetamine could gross between \$2.5 and \$5 million annually, with at least one-tenth of this amount reverting to the original manufacturers-distributors of the drug. However, personal consumption at various lower distribution levels is so great that it is unlikely that more than one or two million dollars changes hands in the speed marketplace every year. Compared to the

* Quantities of speed weighing less than half an ounce are usually measured by eye with no recourse to scales, spoons or other standardized measuring devices.

† The use of physical force in the collection of debts contributes further violence to a scene that is already characterized by the casual possession and occasional use of firearms, and frequent 'rip-offs' (thefts) and 'burns' (fraudulent sales).

extremely large amounts of money ultimately exchanged for drugs in the cannabis and heroin scenes, the speed market remains a relatively insignificant illicit financial institution maintained by physical need at the bottom and more mercenary considerations at the top.

B.4 COCAINE

LEGAL SOURCES AND LEGAL DISTRIBUTION

Controls on the possession and distribution of cocaine are specified in the *Narcotic Control Act* and the *Narcotic Control Regulations*. The Regulations state that only a duly authorized "licensed dealer" may "manufacture, import or export, sell, give, transport, send, deliver or distribute a narcotic", including cocaine. Medical practitioners may only administer, prescribe, give, sell, or furnish cocaine to patients who are under their professional care and who require this drug for the condition for which they are receiving treatment. Hospitals are prohibited from dispensing or administering cocaine without the written order or prescription of a medical practitioner. Pharmacists may supply cocaine to hospitals and, upon receipt of written or verified verbal prescriptions, to private persons.

Penalties with regard to the unauthorized sale or possession of narcotic drugs, including cocaine, are specified in the *Narcotic Control Act*. Cocaine stocks and records of all transactions of licensed dealers, doctors, hospitals and pharmacists must be open to Department of National Health and Welfare inspection according to the *Narcotic Control Regulations*. All thefts from the above parties must be reported to the Minister of National Health and Welfare.

During the years 1961 to 1971 the estimated annual medical consumption of cocaine fluctuated between a high of 32.627 kilograms in 1965 and a low of 25.715 kilograms in 1970.³

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

Although only relatively small amounts of cocaine are legally used in Canada, there are still thefts of this drug nearly every year. According to the Bureau of Dangerous Drugs, in 1968 and 1969 five and six ounces of cocaine, respectively, were stolen in Canada.^{12, 14} In 1970 nearly 15 ounces were stolen and, in 1971, thefts of cocaine rose to approximately 23 ounces. This latter figure represents about one-fortieth of all the cocaine legally used in Canada in 1971.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

ILLEGAL SOURCES AND PRODUCTION

The primary source for illicit cocaine reaching Canada is South America, particularly Bolivia, Peru, Chile, Colombia and Ecuador.²⁷ Since 100 kilo-

grams (220 pounds) of coca leaves yield only about one kilogram (2.2 pounds) of refined cocaine,^{7, 29} the extraction process (which takes from three to four weeks) is conducted as close to the growing areas as possible in order to reduce the weight of smuggled goods.²⁷ If it is too difficult to complete the extraction process in these remote areas, the leaves are macerated with lime (yielding a pulp or paste which is still lighter than the leaves) and then carried further down the mountain where the extraction is completed.⁸ The drug may cross various borders as raw leaves, paste, or as refined cocaine hydrochloride powder.²⁹

ROUTES AND ORGANIZATION WITHIN SOUTH AMERICA

Much of the coca leaf and cocaine produced in South America is transported through that continent to serve indigenous users (see Figure B.8).^{*} Bolivian coca products are often smuggled into Brazil, Paraguay and north western Argentina (where a large number of Bolivian coca leaf chewers live and work), or along river routes through these countries to Uruguay. Cocaine reaching Brazilian, Argentinian and Uruguayan ports may then be smuggled into North America and Europe.²⁹ Some Bolivian leaves and paste are also transported into northern Chile for final processing and eventual export or shipment to southern distribution centres.^{27, 29}

Illegal cocaine laboratories have also been found in Peru, Colombia and Ecuador.²⁷ From southern Peru the refined cocaine may be smuggled to Brazil, Bolivia or northwards through Colombia. This cocaine may then be shipped to North American and European markets. The Peruvian paste (as opposed to refined cocaine) may be transported northwards to Ecuador for final refinement and then to Colombia and Venezuela for domestic consumption and international shipment. Some Peruvian cocaine is shipped directly from northern Peru to Panama and North America.²⁹

The numerous illegal cocaine laboratories in Peru, Bolivia, Chile, Ecuador and Colombia are independent enterprises which do not restrict their sales to individual syndicates.²⁷ The market is generally not well organized or tightly controlled and cocaine buyers need not establish criminal credentials before purchasing the drug.¹

ROUTES AND ORGANIZATION OUTSIDE SOUTH AMERICA

Before the Cuban revolution Havana was a major trans-shipment point for Bolivian and Peruvian cocaine, as well as European heroin.⁸ The situation has since changed and cocaine is now more likely to be transported by hired

^{*} In the major producing countries of Bolivia and Peru (where coca plant cultivation is legal), production of coca leaf is officially estimated at 13,000 tons per year. International medical, scientific and industrial (soft drink flavouring) needs are estimated to be 300 tons of coca leaf (i.e., about three tons of cocaine) per year. "Consequently", according to the United Nations Commission on Narcotic Drugs, "at least 97 per cent of the world production serves no useful purpose".²⁵

FIGURE B.8
SOUTH AMERICAN COCAINE ROUTES



seamen and diplomats (acting as couriers) or private entrepreneurs. The United States Bureau of Narcotics and Dangerous Drugs claims that their, . . . investigation of Chilean traffickers has revealed the existence [*sic*] of a well organized, highly sophisticated international narcotics smuggling organization. . . which is responsible for smuggling vast amounts of French heroin and Chilean cocaine to United States recipients.²⁸

Organizations such as this recruit seamen couriers to transport the cocaine to various United States port cities (particularly east-coast cities such as Miami, Savannah, Norfolk, Baltimore, Philadelphia and New York), or hire individual couriers (such as diplomats or pilots) to carry the cocaine into

European, Canadian, Mexican and American ports of entry via commercial airlines. According to the American Bureau of Narcotics and Dangerous Drugs, these couriers are usually paid \$1,500 per kilogram for United States deliveries and \$500 for each kilogram of cocaine delivered to Canadian and Mexican cities. In the latter case, additional couriers are then hired to cross the Canadian-American or Mexican-American borders.²⁸ Several air freight lines have also been utilized to smuggle cocaine into the United States via Panama to Miami, the major port of entry.²⁸

Although the United States probably represents the largest single cocaine market outside of South America, there is considerable traffic in the drug in Mexico,⁸ parts of Europe²⁹ and the Middle East.^{8, 18} Police seizures of cocaine in India, Poland and New Zealand in 1969 indicate the international nature of such distribution.²⁶ The Canadian market is relatively small, although the demand for cocaine is certainly increasing among youthful multi-drug users. According to Commission sponsored field investigations, most of the cocaine available in Canada is purchased by individual entrepreneurs in large American cities or is imported, in small amounts, from Peru, Bolivia, Ecuador or Chile.^{8, 19} Although these persons may establish United States or South American dealing contacts which are utilized on several occasions, they do not represent permanent and well organized criminal syndicates of the type which characterize the heroin trade and much of American cocaine trafficking.

SEIZURES

While police seizures, at best, only account for between five and ten per cent of the amount of illicit drugs actually distributed,²⁵ they still serve as a useful index of changes in trafficking patterns. Statistics on seizures in the United States since 1966 indicate the recent and growing popularity of cocaine in North America (see Table B.9). From these figures (which represent only federal Bureau of Narcotics, and Dangerous Drugs seizures) it appears as though cocaine distribution is accelerating in a fashion similar to that experienced by cannabis a few years ago. According to the R.C.M. Police, Canadian cocaine seizures have risen consistently from an "unappreciable quantity" in fiscal year 1969/70 to 2.65 pounds in 1971/72.²² Total Canadian distribution, however, is unlikely to exceed 150 kilograms a year, while the B.N.D.D. has estimated that twice this amount may be smuggled into the United States every month.^{1, 28}

PRICES AND DISTRIBUTION

While the American cocaine market appears to be ultimately controlled by organized criminal syndicates, there is presently no evidence of such systematized and monolithic control in Canada. Cocaine is increasingly available in Canada's larger urban centres (particularly Montreal, Ottawa, Toronto, Winnipeg and Vancouver), but it is unlikely that a single importa-

TABLE B.9

POUNDS OF COCAINE SEIZED IN THE UNITED STATES FOR 1966-1971

Year	Pounds Seized
1966	19
1967	26
1968	63
1969	52
1970	354
1971	436

Source: Kurke, M. I. (Chief, Information Development and Analysis Division, United States Bureau of Narcotics and Dangerous Drugs, Washington, D.C.) Letter to the Commission, October 16, 1972.

tion exceeds five kilograms and the largest Canadian sales are usually fractions of a pound.

Canadian cocaine importers are generally young adults who have had extensive experience in dealing (and occasionally importing) drugs such as marijuana, hashish, hallucinogens and, very rarely, opium. These persons, either individually or in small groups, travel to the cocaine growing or refining countries in South America where they arrange to purchase 'pure' cocaine for between \$1,000 and \$3,000 a kilogram. (In the larger South American cities, a kilogram of cocaine may cost as much as \$5,000 if the middlemen cannot be bypassed.) Transportation, hotels and incidental expenses may add as much as \$3,000 to each of these buying expeditions.

The cocaine is then smuggled into Canada, usually by commercial plane or air freight, through various resourceful methods. Additionally, small shipments of cocaine are occasionally mailed to Canada from South America or, if possible, a less conspicuous posting location. The powdery composition of the drug and its very high per-weight value make small quantities of cocaine easy to hide and, consequently, difficult for customs officials to detect. Despite the increased smuggling of this drug, a large importation seizure has yet to occur in Canada.

Upon arrival at its Canadian destination the pure cocaine is divided among those who subsidized the purchase. Some of this pure cocaine is occasionally distributed to other dealers (some of whom may operate in other cities) for between \$12,000 and \$14,000 a pound, but most of it remains with the importers who initially dilute the drug with lactose or dextrose by 50 to 100 per cent and sell it in ounces to local sub-dealers.

In American cities the distribution network is somewhat different as importing syndicates sell pure kilograms to large distributors who, in turn, sell diluted pounds, or parts thereof, to dealers lower in the cocaine distribu-

tion hierarchy. The United States prices are also lower than those in Canada, perhaps reflecting the greater availability of the drug. As reported by Woodley,

In the illegal drug business, cocaine is sold cut [diluted] in \$10 or \$20 capsules. . .; teaspoons [between \$65 and \$75] and tablespoons [\$150] . . .; "pieces", which are four tablespoons, or about an ounce [\$550]; parts of "keys" (kilograms, 2.2 pounds) from eighths, quarters [about \$4,500], halves, all the way to whole keys of pure cocaine, which cost, in New York anywhere from \$14,000 to \$20,000.³⁵

In contrast, Montreal and Toronto cocaine distributors ordinarily sell approximately 50 per cent pure cocaine for around \$750 an ounce (pure ounces, which are very rarely available, command at least \$1,000 each), while similarly diluted half- and quarter-ounces are sold for between \$400 and \$500 and \$200 and \$300, respectively. The purchaser of these 'weights' is likely to further dilute the drug and sell it in grams (for between \$40 and \$60 each, depending on its purity and the number of grams bought simultaneously) or half-grams (at between \$25 and \$35 each). If cocaine were commercially available from a pharmacist, his normal mark-up would indicate a retail price of no more than \$50 an ounce.

The relatively unorganized nature of the Canadian cocaine distribution system is reflected in the irregular availability of the drug and the lack of price, purity and quantity standardization even within the same city. As the cocaine-using population (almost all of whom occasionally 'snort' rather than inject the drug) continues to expand, the market is likely to be serviced by better organized and more experienced drug distributors who recognize the significant profits to be made from such ventures. At this time, however, the cocaine market more closely approximates the Canadian marijuana market of the early 1960s than the heroin distribution network which cocaine is erroneously but often considered a part of.

B.5 HALLUCINOGENS

LEGAL SOURCES AND LEGAL DISTRIBUTION

The laws controlling the distribution and possession of hallucinogens are contained in Part IV of the *Food and Drugs Act* and Part J of the *Food and Drug Regulations*. Hallucinogens are referred to as "restricted drugs" in both the Act and its Regulations. These legislative measures came into effect in August 1969. At that time it became illegal for unauthorized persons to possess, sell, manufacture, export or import LSD, DET, DMT and STP (DOM).^{*} MDA, MMDA and LBJ were added to the Schedule of restricted drugs in December 1969, and in May 1970 a number of dimethoxyampheta-

^{*} The unauthorized sale of LSD was originally prohibited in 1962, but comprehensive hallucinogen control measures (including a possessional offence) were not enacted until August 1969.

mines were also added. Harmaline and harmalol, the most recent additions, were included in this Schedule in November 1971. All restricted drugs are presently listed in Schedule H of the *Food and Drugs Act*.

This Act and its Regulations limit the possession of restricted drugs to institutions and persons authorized by the Minister of National Health and Welfare. Federal analysts and inspectors, police and court officers, and staff members of the Department of National Health and Welfare may also possess these restricted drugs if such possession is "for the purpose and in connection with" their employment. Persons or institutions authorized by the Minister to possess or distribute these substances must keep a record of their stocks and transactions for Department of National Health and Welfare inspection, and must notify the Minister of National Health and Welfare and local law enforcement authorities of "any loss or theft of a restricted drug".

At the present time a government official within the Health Protection Branch of the Department of National Health and Welfare has been designated as the only "licensed dealer" of restricted drugs in Canada.¹¹ Qualified investigators wishing to conduct research with these drugs must apply for their purchase through an institution (including universities, hospitals, and departments or agencies of the federal or provincial governments) to this "licensed dealer" who must receive ministerial approval before he distributes restricted drugs.

Current research involving restricted drugs is focussed primarily on animal studies and investigations into improved analytical methodology.¹¹ Requests for the use of restricted drugs in clinical studies (involving human subjects) have not been approved in Canada since 1969.

Several varieties of organic hallucinogens (including nutmeg, morning glory seeds, woodrose, *amanita muscaria* ['magic mushroom'] and psilocybin) are not included in either Schedule H (restricted drugs) or G (controlled drugs) of the *Food and Drugs Act*, in Schedule F of the *Food and Drug Regulations* or in the Schedule of the *Narcotic Control Act*. Consequently, the importation, possession and sale of these substances are not prohibited. However, these drugs are rarely available in the Canadian drug market and are generally used, if at all, for non-psychotropic purposes. Mescaline is controlled under Schedule F of the *Food and Drug Regulations* and may be legally purchased only on the written or oral prescription of a licensed medical practitioner. However, even if an individual possessed such a prescription, it would, at present, be impossible to have it filled at any pharmacy as commercial pharmaceutical mescaline is not available in Canada. All legally distributed supplies of mescaline have been used exclusively for research or experimental medical purposes.

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

Except for a very few authorized experimental programs, there have been no legal sources for and no legal distribution of the more popular hallu-

cinogenic drugs in Canada since August 1969. Some hallucinogenic drugs, however, are available as legally manufactured prescription veterinary substances, and there is reason to believe that one of these, PCP, may have been occasionally diverted to the underground market where it has been packaged and sold as the 'peace pill', as 'THC', and as mescaline. This drug first became popular among Canadian hallucinogen users during 1970 and 1971, and recent street-drug analyses and police seizures indicate that PCP is still readily available in the illicit market.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

All of the major hallucinogens in the illicit drug market (such as LSD, PCP and MDA) are either illegally produced in Canada or are smuggled into this country, primarily from the United States. The North American underground distribution of LSD (or 'acid'), the most popular and widely discussed hallucinogen, was not publicly noticed until 1962 when an "... illicit trade in the 25 mcg. tablets, 100 mcg. ampules, and in sugar cubes saturated [*sic*] with 100 mcg. of the agent..." was first reported on the American west coast.⁴ Sandoz Pharmaceuticals, the only legal distributor of LSD, withdrew the drug from the clinical research market in early 1966 as a result of "... unforeseeable public reaction..."³⁰ Sale of lysergic acid (an essential chemical precursor for LSD manufacture) to unauthorized customers was prohibited by the United States Food and Drug Administration around the same time, and all LSD distributed to authorized researchers was recalled. But, as Geller and Boas have noted, "... prior to 1966 one could still legally purchase lysergic acid from... [chemical suppliers]... for approximately fifty to seventy-five dollars a gram and a good many people were doing exactly that."⁹ When LSD itself was made illegal,* the more determined manufacturers (now armed with the chemical know-how and several years of laboratory experience) simply moved their operations underground, obtained their chemical precursors from illicit sources, and continued to produce LSD while experimentally developing newer hallucinogens such as STP (which first appeared in California in mid-1967)^{22, 23} and MDA (which gained widespread popularity in Canadian multi-drug scenes by the summer of 1969). LSD, however, remains the principal drug in the hallucinogen market and will be considered prototypical in the following discussion.†

LSD is manufactured in underground laboratories (called 'factories' or 'kitchens') in or close to cities in which there are large concentrations of

* The illicit manufacture and sale of LSD were prohibited in the United States, as misdemeanours, under the federal Drug Abuse Control Amendments of 1965, which came into effect in April 1966. Illicit manufacture and sale were rescheduled as felonies in 1968 and a federal possessional offence was introduced at the same time. More importantly for illicit manufacturers at that time, the California legislature outlawed the possession and sale of LSD in the fall of 1966.^{3, 15, 27}

† Small amounts of organic hallucinogens, such as mescaline, peyote and psilocybin, are reputed to occasionally enter the Canadian drug market. These supplies, however, are highly irregular and not associated with any major distribution network.

users.* While some laboratories are thought to exist in Toronto, Montreal and British Columbia, most of the LSD in Canada is illegally imported from American sources, chiefly in California. While it is generally conceded that LSD use has become less noticeable over the past few years, the United States Bureau of Narcotics and Dangerous Drugs noted that the drug was still being manufactured by perhaps as many as 100 clandestine laboratories across the United States in late 1971.²⁹

The actual production of LSD requires a substantial financial outlay, access to illegal chemical precursors, and considerable chemical skill. Construction of an LSD laboratory necessitates a minimal expenditure of around \$10,000 for basic equipment and chemical ingredients.^{2, 14} According to Warner:

The materials come from chemical and laboratory supply houses located in most of the major metropolitan areas. . . . The laboratory equipment is available to anyone able to pay the catalog prices. With the exception of lysergic acid, which is a controlled item, the precursors or chemicals necessary to make most of the popular hallucinogenic drugs can be purchased from these supply houses.³⁰

The major difficulty encountered by LSD manufacturers is obtaining the essential chemical precursor: lysergic acid. This chemical is ordinarily secured through the chemical hydrolysis of ergotamine tartrate. While ergotamine tartrate can be obtained for authorized purposes from American chemical supply houses, it is usually purchased on the black market for between \$15,000 and \$20,000 a kilogram (2.2 pounds) or is smuggled into North America from Poland or Czechoslovakia where it is more readily available for about one-half of the American cost. One hundred grams of ergotamine tartrate is said to yield approximately nine grams of lysergic acid which, when subject to further chemical procedures, actually yields about five grams of LSD.^{†15} These five grams of LSD, however, represent between 10,000 and 50,000 single-dosage units of the drug, depending on how it is subdivided for retail sale.

Large-scale LSD manufacturing is ordinarily sponsored by one or two major investors who are usually in their early twenties to early thirties and have the contacts and capital to initiate such a venture. Carey, in describing these individuals at the top of the LSD distribution hierarchy, has noted that:

Minus the cost of lysergic acid and laboratory costs, the Mr. Big should take but two to three months to clear his major expenses for the year, and then

* Nearly 50 per cent of the 72 illicit hallucinogen laboratories seized by agents of the United States Bureau of Narcotics and Dangerous Drugs between 1966 and 1969 were located in three states: California, Massachusetts and New York.¹⁵

† Some underground chemical manuals promise a yield of at least four times this high, or more than 20 grams of LSD from 100 grams of ergotamine tartrate.³² Some San Francisco area underground chemists claim an LSD yield of as high as 33 per cent.³³

his overhead is merely precautionary. The Mr. Big obviously needs but one motivation—*money*. Obviously, he must operate as a criminal, hiding his raw materials, his finished product, his laboratory, and even his chemist.*²

In 1968 the major California 'chemists' are each said to have been manufacturing sufficient LSD to produce between 10,000 and 20,000 individual doses a month. These chemists' skills are highly valued (each earns between \$1,000 and \$2,000 a month) and, consequently, they are unlikely to be involved in the actual distribution of the drug.² Rather, the chemist will deliver the LSD in a crystalline or 'liquid' (in solution) form to the major investor and he, in turn, will sell grams or half-grams of the drug to other large-scale dealers or convert the drug to single-dosage units for sale in thousand-dose lots. Grams of LSD have sold for up to \$4,000 each, but a steady deflation of the market since 1968 has lowered their price to between \$500 and \$600 apiece in California and between \$750 and \$1,200 apiece throughout most of Canada. The purchaser of grams, however, is still faced with the problem of converting the drug into individual doses.

The transformation process employed depends on whether the grams of LSD are initially liquid or crystalline. In the case of liquid grams, a blotter may be soaked in a known amount of the drug and then, after drying, divided into the desired number of 'hits' (single doses). Alternatively, gelatin may be added to a solution containing a known amount of the drug. This mixture is then dried and cut into uniform single doses which are sold as 'clear light' or 'window pane' acid.† Crystalline LSD is usually mixed (or 'buffed') with inert substances, such as lactose or baking soda (and, occasionally, non-toxic colouring), in an agitator for several hours.‡ This mixture is then 'capped' (placed into capsules) or 'tabbed' (compressed into tablets on professional machinery). The tabbing process may be performed by someone external to the particular dealership for between five and ten per cent of the LSD's value at this stage in the distributing network.

Whether the single doses of LSD are prepared from liquid or crystalline grams does not essentially affect the eventual yield: one gram (or one million micrograms) of LSD can be converted into 4,000 single doses, each of which contains 250 micrograms of the drug. Should the manufacturer desire smaller dosage units (and larger profits), he need simply add more 'buff' to his crystalline mixture. In this manner one gram of LSD will yield as many as 10,000 doses, each containing a potent 100 micrograms of LSD.

* Some of the very early (pre-1968) underground LSD manufacturers appear to have been motivated more by a desire to 'turn on the world' than any mercenary considerations.

† Liquid LSD may also be 'dropped' on nearly any 'carrier', sugar cubes being the best known example of this method. This mode of packaging, however, has rarely been observed since the mid-sixties.

‡ Adulterants such as amphetamines or strychnine may be added at this stage of the packaging to produce certain effects considered more desirable or saleable by the manufacturer.

These tablets or capsules of LSD are quickly sold, in bulk lots, to a number of middle-level dealers, often on consignment. Although the price varies with the potency and quality of the drug, 4,000 or more doses will usually cost around \$800 (or twenty cents each) in California, while smaller bulk purchases are calculated on a twenty-five cent per single-dose basis. Third-level dealers, who pay the middle-level dealers in cash for their supplies, are likely to purchase under one thousand units at a time for between thirty and forty-five cents a hit. They, in turn, sell smaller lots (usually well under one hundred) to street dealers for between fifty cents and one dollar a dose.

LSD is occasionally smuggled into Canada as liquid or crystalline grams,* but is more likely to initially appear as 'tabbed' grams (about 4,000 individual doses) which sell for a little over \$1,000, or in thousand-hit lots which sell for around \$400 each. These bulk purchases are then subdivided into smaller lots for sale to intermediary and street dealers, the per unit cost increasing with each exchange. Eventually LSD is sold to its consumers for around two or three dollars a single dose, although street prices as low as one dollar a dose have been reported.†

Persons who traffic in small amounts of LSD are ordinarily also engaged in the distribution of other drugs such as marijuana and hashish. 'Chemicals' (as the hallucinogens are generically referred to) are simply part of these dealers' regular inventory, although they are rarely aware of the actual substances they are selling. Their customers are similarly unaware, and hallucinogen dealers occasionally take advantage of this situation by claiming that their chemicals are whatever drug it is that's being sought. 'Strawberry acid', for example, may be sold as 'pink mescaline' to someone desiring an 'organic' drug. In some cases a dealer may, knowingly or otherwise, sell impurely or incompletely synthesized hallucinogens, or combinations of non-hallucinogenic drugs (or even inert substances) alleged to be 'chemicals'.²⁸ In both cases, however, it is not uncommon for customers to return for additional supplies after experiencing what they deem to be a 'good trip'.‡

For most hallucinogen users, the quality or purity of a given capsule or tablet does not appear to be as important as their subjective appreciation of the drug's effects. While these persons will question a dealer as to a drug's purity, they are usually in no position to dispute his claims. Consequently

* LSD, in either liquid or crystalline form, is easier to smuggle through international customs than any other drug because of its relatively infinitesimal weight and the fact that it is odourless, colourless and tasteless.

† In the winter of 1967-68, a single-dose unit of LSD could still command between ten and fifteen dollars in the Canadian hallucinogens market. By the summer of 1968 the retail price had dropped to five or six dollars, and it has declined steadily ever since.

‡ Customers complaining of 'bad trips' to a dealer are usually informed that the problem rests in their psyche and not the drug. While bad trips on 'good acid' have been documented, it is also true that some adverse reactions are the consequence of ingesting hallucinogens of poor quality or substances that have no psychotropic properties.

they are likely to decide to purchase on the basis of their trust in and experience with the dealer, the availability of alternate sources, their familiarity with the drug in question, the occasional reports of other users, and the price of the drug.

Analyses of street LSD and other hallucinogens have generally found that a substantial percentage of the samples are something other than they were alleged to be.* Generally speaking, LSD, MDA and PCP—or some combination of these drugs—account for at least 90 per cent of the hallucinogens available in the illicit market. PCP is almost never alleged to be PCP when submitted for analysis, mescaline is extremely rare, and psilocybin has never been positively identified through a street-drug analysis program.

Marshman and Gibbins, in an analytical study of street drugs collected in Ontario (primarily Toronto) between January 1969 and February 1970, found that only 56 per cent of the 176 samples alleged to be LSD “. . . did in fact contain that substance in a relatively well purified form”.²⁴ Another 22 per cent of these samples were the result of unsuccessful LSD synthesis and 18 per cent were “impure” LSD. Less than one per cent of the samples could not be identified, and four per cent contained no LSD at all. Only 62 per cent of those samples alleged to be MDA actually were MDA, and none of the 58 samples alleged to be mescaline actually contained this drug.

A Commission review of Canadian street-drug analysis (performed by numerous Canadian laboratories, from January 1970 to November 1972) found roughly similar results. Excluding LSD-PCP mixtures (which are reported as a separate drug category by the Health Protection Branch), slightly more than two-thirds of the 162 analysed samples alleged to be LSD were, in fact, relatively pure LSD. About five per cent of these samples were the products of faulty or incomplete LSD synthesis, and the remainder were either deceptions containing no LSD (17 per cent) or LSD mixed with other drugs such as MDA or barbiturates (9 per cent). Only 42 per cent of the 64 samples alleged to be MDA actually contained pure MDA, while an additional 20 per cent contained MDA mixed with other drugs such as LSD or amphetamine. In 27 per cent of the cases a drug other than MDA was present, and in the remaining 11 per cent of the analyses no drug was identified. Of 171 samples alleged to be mescaline, only five (3 per cent) contained any mescaline, whereas PCP, LSD or LSD in combination with other drugs constituted 59 per cent of the analyses. The remainder consisted of other drugs (20 per cent) or no drug at all (18 per cent).

Thus, an illicit hallucinogen user has, at best, about a fifty per cent chance of obtaining an unadulterated drug through street transactions.

* Hallucinogens submitted to laboratories for analysis are often those suspected of being adulterated or the cause of adverse reactions. Consequently, the samples reviewed in this section can in no way be considered a random selection of hallucinogens in the Canadian market. These data are reviewed in more detail in Appendix A.5 *Hallucinogens and Their Effects*.

B.6 ALCOHOL

LEGAL SOURCES AND LEGAL DISTRIBUTION

The majority of the alcoholic beverages consumed in Canada are manufactured here. More than 95 per cent of the ale and beer consumed by Canadians is brewed in Canada and, with the exception of scotch whisky and a few other imported beverages, the distilled liquors consumed in Canada originate in this country. Over one-half the wines consumed in Canada are domestically produced.

The Federal Government, through the *Excise Act*, regulates the manufacture and importation of all beverage alcohol through the issuing of licences or permits to all distillers, brewers and importers. Manufacturers or importers of beverage alcohol are required to pay an excise duty on all products sold, and they must report all phases of their operations to the Federal Government. The contents and quality of alcoholic beverages, including the permissible range of alcohol concentration, are regulated by the *Food and Drug Regulations*.

The distribution of alcoholic beverages is regulated by the provincial governments and the governing bodies of the Yukon and Northwest Territories which hold a monopoly on the sale of beverage alcohol in their jurisdictions. Distribution is legally regulated by provincial liquor control acts, and their sale in such outlets as cocktail lounges, beverage rooms and licensed dining rooms is regulated through these acts or, in some provinces, liquor licensing acts.

Liquor control acts empower provincially appointed boards to determine the prices at which bottled beverage alcohol is sold in retail outlets, as well as hours of sale and, in some provinces, those private entrepreneurs who may operate as special agents for the sale of bottled beverages. These include, for example, independent grocers in Quebec who may sell beer or, in a few other provinces, private merchants in remote areas whose premises are utilized as retail outlets for liquor.

Liquor licensing acts govern the conditions under which liquor or beer may be dispensed for on-site consumption. Hours of sale are closely regulated, and sanitary and hygienic requirements are specified in the regulations to these provincial acts. Licensing boards also stipulate the number of outlets which may be operated in a given area, and determine who shall be permitted to operate these drinking establishments.

Provincial statutes specify drinking age limits, with penal consequences for persons who sell alcoholic beverages to persons under the legal age. At the present time, the following legal ages apply: 18 years of age—Saskatchewan, Manitoba, Ontario, Quebec, Prince Edward Island and Alberta; 19 years of age—Nova Scotia, British Columbia, New Brunswick, Newfoundland, the Yukon and Northwest Territories.

In all provinces the sale of alcoholic beverages to intoxicated persons or to "interdicted" persons, that is, persons who, in the opinion of provincial authorities, use alcohol excessively to the detriment of their family or others, is prohibited.

The distribution of alcoholic beverages in Canada is of significant economic proportions. During 1970, more than 16,000 persons were employed by distilleries, breweries and wineries in Canada, sharing a total payroll of more than \$140 million.^{6, 8, 9} Table B.10 shows the dollar value of all alcoholic beverages sold (i) by liquor authorities to the final consumer and to holders of licences to resell, (ii) by wineries and breweries to holders of licences to resell, and (iii) by wineries' and brewers' retail outlets.⁷ The dollar volume of such sales is increasing annually. Between the fiscal years ending March 31, 1967 and March 31, 1971, the dollar volume of these sales increased by over 37 per cent. Total sales for fiscal year 1970/71 were in excess of \$1.85 billion. This figure does not represent the final retail selling price of all alcoholic beverages, as mark-ups by licensees, on the sale of alcoholic beverages to final consumers, are not included.

TABLE B.10

SALES OF ALCOHOLIC BEVERAGES IN CANADA BY VALUE
FISCAL YEARS 1966/67 TO 1970/71

(in thousands of dollars)

	1966/67	1967/68	1968/69*	1969/70	1970/71
Spirits.....	661,282	734,368	784,833	817,201	869,640
Wine.....	103,811	117,749	129,871	154,680	178,951
Beer.....	587,374	624,673	668,955	731,449	808,023
Totals.....	1,352,467	1,476,790	1,583,659	1,703,330	1,856,614

Source: Canada, Statistics Canada. *The control and sale of alcoholic beverages in Canada: 1970.* Catalogue 63-202. Ottawa: Information Canada, 1972.

* The 1968/69 figures include an eight per cent retail sales tax collected at outlets by one province that year. Total collection: \$10,140,000.

Commerce in beverage alcohol is a significant source of revenue for federal, provincial and territorial governments—the Federal Government, through the collection of taxes and excise and import duties and the issuing of licences and permits, and the provincial and territorial governments, through the sale of permits, the collection of taxes and the profits accruing from sales

through government monopolies. Table B.11 lists the revenues of all governments in Canada specifically derived from the control, taxation and sale of alcoholic beverages during fiscal years ending March 31, 1967 to 1971 inclusive. It will be noted that during this four-year period the revenue of provincial and territorial governments from these sources increased by more than 42 per cent, and the revenue of the Federal Government increased by almost 32 per cent. During the fiscal year ended March 31, 1971, the total revenue of all governments from the control, taxation and sale of alcoholic beverages was almost one billion dollars.

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

While alcoholic beverages are probably more accessible in Canada presently than ever before, high taxation of these products and the regulation of sales (particularly age and temporal restrictions) continue to invite the illegal distribution of licitly produced beer and liquor. In some cases the alcohol is diverted (usually through theft or smuggling) from its legitimate distribution channels, and in other cases alcohol is sold to persons, in places, or at times, prohibited by provincial statutes.

Despite the recent reduction of the legal drinking age in several Canadian provinces, it is likely that under-aged youths continue to imbibe alcoholic beverages. For most, the age restrictions can be evaded by simply borrowing an older friend's or relative's identification document or by purchasing or preparing passable counterfeits. If the alcohol is desired for residential consumption, an older friend may agree to purchase the beer or liquor and transfer it to an under-aged person. Furthermore, nearly every Canadian city contains a few bars, taverns or discotheques with a reputation for "not checking I.D.'s", so that, in many instances, there is no need to resort to the stratagems mentioned above.

Provincial regulations regarding the times during which alcohol may be purchased and the lack of retail liquor outlets in some communities have probably contributed to the persistence of various bootlegging operations throughout the country. In most large Canadian cities nearly anyone can buy alcohol 'after hours' or on Sundays, at approximately twice the cost of a legal purchase, by simply contacting taxi-cab firms that are known to provide such services.³⁶ Similar distribution operations exist in 'dry' communities where a local resident may stockpile alcoholic beverages for illicit resale at any time of day or night.

In some small towns, where an individual—for various reasons—may be refused service in licensed liquor premises, there often exist houses where he may illegally purchase and consume beer or liquor for about twice the legal fare.²⁶ Similar bootlegging ventures (some of which are controlled by organized criminals) are apparent in most large cities where they are generally known as 'bottle houses', 'after-hours places' or 'blind pigs'. As in the smaller communities, the alcoholic beverages are legally obtained from pro-

TABLE B.11
REVENUE OF ALL GOVERNMENTS SPECIFICALLY DERIVED FROM THE CONTROL, TAXATION AND SALE OF ALCOHOLIC BEVERAGES
FISCAL YEARS 1966-67 to 1970-71
(in thousands of dollars)

GOVERNMENT	1967	1968	1969	1970	1971
Government of Canada.....	320,864	353,001	371,802	396,260	432,518
Provincial and Territorial Governments:					
Newfoundland.....	9,879	10,537	11,806	12,916	14,450
Prince Edward Island.....	2,688	3,069	3,416	3,665	3,983
Nova Scotia.....	15,950	17,168	20,040	23,935	26,249
New Brunswick.....	12,815	13,360	17,633	17,662	19,279
Quebec.....	89,560	98,587	75,541	111,287	116,102
Ontario.....	135,154	150,632	194,013	180,404	195,008
Manitoba.....	23,408	23,701	25,789	27,941	30,760
Saskatchewan.....	21,632	24,589	25,754	26,476	27,895
Alberta.....	35,405	39,359	41,512	47,372	56,209
British Columbia.....	44,981	50,711	56,180	61,662	66,181
Sub-totals.....	391,472	431,713	471,684	513,320	556,116
Yukon.....	1,157	1,292	1,666	1,808	1,865
Northwest Territories.....	1,440	1,707	1,908	2,148	2,404
Totals, Provincial and Territorial Governments.....	394,069	434,712	475,258	517,276	560,385
Totals, all Governments.....	714,933	787,713	847,060	913,536	983,903

Source: Statistics Canada. *The Control and Sale of Alcoholic Beverages in Canada, 1970*. Ottawa: Information Canada, 1972.

vincially controlled retail outlets and then resold (in violation of various provincial statutes) at approximately a 100 per cent price mark-up.^{15, 26}

The most dramatic diversions from legitimate distribution channels, however, involve the theft of considerable quantities of alcohol from trucks or warehouses and the smuggling of duty-free liquor. The smuggling operation is most popular in Newfoundland where some outporters travel the seven miles from Burin Peninsula to the French island of St. Pierre to purchase duty-free liquor (rum, for example, costs less than two dollars for a 26-ounce bottle) which they then smuggle back to Canada for resale.^{34, 43} One particularly profitable item is a pure alcohol known as 'steam', which can be purchased in two and one-half-gallon cans for \$25. Each can, according to an article in *Time* magazine, "produces 15 bottles, which in turn can be cut three-to-one".⁴³ This enterprise is said to generate between five hundred thousand and one million dollars a year for those who participate in the smuggling.⁴³ The theft of liquor, particularly through the hijacking of trucks, is another source of illicit diversion. Most recent thefts of this nature have occurred in the Province of Quebec where several shipments valued in the neighbourhood of one hundred thousand dollars have been stolen.^{11, 20, 29, 44} The size and sophistication of these thefts suggest organized criminal involvement but, at the moment, there is no data to substantiate this claim or to explain how the stolen liquor is eventually distributed.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

The production and distribution of illicitly distilled alcohol in Canada continues to flourish in spite of the increased accessibility of legal liquor. The production of 'moonshine' is often considered a relatively innocuous ethnic custom or a delightful and satisfying evasion of government attempts to control or tax pleasure. These factors help to make moonshine production difficult to detect. However, the impurities in some illicitly produced alcohol, the involvement of organized criminal elements, and the significant amounts of tax revenue lost yearly constitute a serious problem.

According to the Deputy Commissioner of the R.C.M. Police more than 2,300 'stills' were seized between April 1960 and April 1971. Most of these stills,

... were of the pot or drip type variety having a daily capacity of one to fifty gallons of spirits [but approximately ten per cent] were of the large commercial type with a daily capacity ranging from fifty to 275 gallons of spirits.¹³

The most recent *Annual Report of the Solicitor General of Canada* indicates that between April 1st, 1971 and March 31st, 1972, 237 stills were seized under the *Excise Act*.⁵ Eleven of these stills were of the large commercial type, and it is estimated that their combined daily output was nearly 1,500 gallons. Table B.12 presents a summary of illicit alcohol and still seizures from April 1966 to March 1972.

TABLE B.12

SUMMARY OF ILLICIT ALCOHOL RELATED SEIZURES UNDER THE EXCISE ACT
FOR FISCAL YEARS 1966-67 TO 1971-72

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Still and Part Stills.....	207	134	186	292	261	237
Spirits (gallons)*.....	6,014	3,714	5,122	8,290	4,872	5,407
Beer and Wash (gallons)..	70,042	29,321	52,023	99,303	38,682	61,316

Sources: Canada, Solicitor General of Canada. *Annual Report, 1969-1970*. Ottawa: Information Canada, 1970.

Canada, Solicitor General of Canada. *Annual Report, 1970-71*. Ottawa: Information Canada, 1971.

Canada, Solicitor General of Canada. *Annual Report, 1971-72*. Ottawa: Information Canada, 1972.

Perry, W. F. G. (Chief Preventive Officer, R.C.M. Police) Letter to the Commission, November 17, 1971.

* In addition to seizures of spirits under the federal *Excise Act*, some provinces handle seizures of spirits under provincial statutes. Such seizures are not included in the above statistics.

According to the R.C.M. Police, since the excise duty on one gallon of proof spirits is \$14.25 and illicit spirits normally analyse at 150 proof or higher, it is estimated that the federal revenue loss on one gallon of illicit spirits is at least \$20.^{5, 42} The Federal Government's tax revenue loss for the 5,407 gallons seized during 1971-72 can thus be estimated at just over \$100,000, and the loss for the six-year period stretching from 1966 to 1972 at approximately \$670,000. Provincial and territorial governments' revenues are also affected by this illicit production both in terms of liquor control administration and general sales taxes. Furthermore, these revenue loss estimates are based solely on actual seizures; the total tax and sales losses attributable to this illegal activity cannot even be estimated.

More illicit alcohol appears to be produced in Quebec than any other province. In western Canada, Manitoba appears to be the greatest centre of such production.^{1, 4} It has been estimated that 600,000 Quebecers, or one out of every seven persons over 15 years of age in that province, consume illicit alcohol.³⁸ The high rates of illicit production and consumption in Quebec are probably attributable to both the provincial popularity of 'Alcool' (an unflavoured legal alcoholic beverage which diluted 'moonshine' closely approximates) and the likelihood of organized criminal involvement in the distribution of illicit alcohol to criminally controlled nightclubs, bars and 'after-hours' establishments.^{22, 26} Table B.13 indicates the seizures of illicitly produced spirits and beer as broken down by provinces for fiscal years 1970-71 and 1971-72.

TABLE B.13

SUMMARY OF ILLICIT ALCOHOL AND BEER SEIZURES UNDER THE EXCISE ACT,
BY PROVINCE, FOR FISCAL YEARS 1970-71 AND 1971-72

(in gallons)

	Spirits		Beer and Wash	
	1970-71	1971-72	1970-71	1971-72
Newfoundland.....	4	1	50	24
Prince Edward Island.....	1	10	48	54
Nova Scotia.....	23	243	773	388
New Brunswick.....	—	28	—	138
Quebec*.....	3,836	4,563	34,527	56,169
Quebec and Ontario†.....	87	49	23	20
Ontario‡.....	111	347	711	1,148
Ontario and Manitoba§.....	510	92	1,637	2,404
Saskatchewan.....	202	59	411	532
Alberta.....	22	12	36	35
British Columbia.....	76	30	466	404
Total.....	4,872	5,407	38,682	61,316

Sources: Canada, Solicitor General of Canada. *Annual Report, 1970-71*. Ottawa: Information Canada, 1971.

Canada, Solicitor General of Canada. *Annual Report, 1971-72*. Ottawa: Information Canada, 1972.

* Quebec, excluding west and north of Hull.

† Eastern and northern Ontario and western Quebec.

‡ Ontario, south of Gravenhurst and west of Belleville.

§ Manitoba and Ontario west of Nipigon.

Most Canadian stills are of the low production variety supplying local markets. This type of operation is particularly prevalent among certain ethnic groups and in small towns or rural areas without retail liquor outlets. The extension of alcohol prohibition into the 1950s in some provinces (particularly parts of the Maritimes) has also probably contributed to the maintenance of illicit production, as has the high potency of 'moonshine' and its relative inexpensiveness. According to one Manitoba R.C.M. Police sergeant, "When you pay \$4 for [an illicit] 26 [ounce bottle], you're getting the equivalent of almost two government 26's, which is one reason for its popularity".¹

While the profit motive probably underlies every illicit distribution venture, it is probably only of paramount concern in regard to the large-scale commercial operations. These stills are capable of producing up to several hundred gallons of illicit alcohol a day.¹² Based on a \$15 to \$20 per gallon

retail selling price and a conservative daily production figure of 100 gallons, the operators of such an enterprise can expect a gross income of between \$1,500 and \$2,000 a day. According to an article in the *R.C.M.P. Gazette*, these "large scale commercial operations may involve an initial financial outlay of \$50,000" to cover such expenses as farm rental or purchase, the drilling of wells, the erection of a still, the installation of hydro, the purchase of supplies and vehicles, and the hiring of operators.⁴²

There is some evidence that criminal organizations have been involved in the establishment of these costly but lucrative enterprises.²³ Montreal based criminals have been known to establish and operate their own stills in rural areas in Quebec and eastern Ontario to supply their distribution outlets (primarily criminally controlled clubs and bars in Montreal) with inexpensive alcohol which (after dilution, flavouring and rebottling in discarded 'empties') is sold at regular prices to unsuspecting customers.^{16, 26} In most cases the distilled spirits are sold to a wholesaler for between \$15 and \$20 per gallon. The wholesaler dilutes the spirits to approximately legal proof, allowing him to produce one case of twelve 25-ounce bottles from every gallon, which he then sells to a local distributor for around \$35 (or at a profit of between \$15 and \$25 per gallon). The small-scale, local distributor (who has a "'milk run' of customers to whom he delivers a designated quantity regularly"⁴²) sells the product for between four and five dollars a bottle, allowing himself a profit of between \$12 and \$24 a case. According to the R.C.M. Police,

It is these small scale distributors who are most frequently apprehended by the police; the "higher-ups" remain in the background and are more difficult to apprehend. Thus, the financial backers who supply the capital for alcohol production and distribution, as well as for bail bonds and fines incurred by still operators or bootleggers, cannot always be convicted for the illegal activity.⁴²

Occasionally illegally distilled alcohol will be sold as though it were a legal product (although not in provincial liquor outlets), having been bottled in discarded 'empties' (obtained from legitimate bottle salvage firms) bearing genuine or counterfeit labels or, in some cases, the labels of non-existent foreign companies.^{3, 18, 32, 33, 35, 42} During fiscal year 1971-72, the R.C.M. Police seized eight illicit bottling plants, "the contents of which included genuine liquor bottles, counterfeit labels and seals".⁵ Dry gin appears to be the easiest product to imitate, but illicit alcohol distributors have produced most types of liquor and have used the name of nearly every major licensed distiller.⁴²

Although it is impossible to even estimate the extent of illicit alcohol production and distribution, it is clear that only a very small fraction of the total production is ever confiscated. 'Moonshine' remains a lucrative, though rarely discussed, Canadian industry.

B.7 MINOR TRANQUILIZERS, BARBITURATES AND OTHER SEDATIVE-HYPNOTICS

LEGAL SOURCES AND LEGAL DISTRIBUTION

The distribution of minor tranquilizers, barbiturates and other sedative-hypnotics is regulated by the provisions of the *Food and Drugs Act* and its *Regulations*. Alcohol may also be considered a sedative-hypnotic drug, but is discussed separately in this appendix (see B.6 *Alcohol*).

The major and minor tranquilizers and the non-barbiturate sedative-hypnotics listed in Schedule F of the *Food and Drug Regulations* may only be retailed on the written or verbal prescription of a licensed medical practitioner. These prescriptions can only be refilled if a practitioner so prescribes and may not be refilled more than the number of times indicated by the practitioner. The *Food and Drug Regulations* contain provisions regarding the manufacture, sale, importation, and labelling of Schedule F drugs. Sale of these drugs to a member of the public without a prescription is prohibited, but the unauthorized possession of them for personal use is not an offence.

Distributors must, under certain circumstances, keep records of their distribution of Schedule F drugs. Manufacturers must also maintain samples of any Schedule F drug they manufacture. As there is no requirement to submit regular reports or returns of Schedule F drugs to the Department of National Health and Welfare as is the case with narcotic and controlled drugs, it is not possible to present an official statement of the annual estimated consumption of tranquilizers and non-barbiturate sedative-hypnotics.²⁰ However, certain non-governmental estimates are available. For example, according to a Canadian Medical Association survey of prescribing habits conducted in February 1971, there were almost twice as many prescriptions written for minor tranquilizers and almost two-thirds as many for non-barbiturate sedative-hypnotics as there were for barbiturates during a typical one-week period.⁷ Additionally, pharmaceutical market surveys of the estimated sales of two minor tranquilizers—diazepam (Valium® and Vivil®) and chlordiazepoxide (Librium®, Solium®, and others)—and methaqualone (a non-barbiturate sedative-hypnotic, including such preparations as Mandrax® and Mequelon®) have been provided to the Commission, and these data are presented in Tables B.14 and B.15.

Barbituric acid and its salts and derivatives are considered as “controlled drugs” in the *Food and Drugs Act*, and are therefore listed in Schedule G of this Act. The *Food and Drug Regulations* contain provisions dealing with the labelling of these drugs and prohibit the manufacture, sale, import and export of controlled drugs by anyone other than a licensed dealer who has been authorized to carry on these activities by the Minister of National

TABLE B.14

ESTIMATED LICIT SALES OF DIAZEPAM, CHLORDIAZEPOXIDE AND METHAQUALONE
TO DRUG STORES AND HOSPITALS, IN KILOGRAMS, FOR THE YEARS 1966 THROUGH 1972*

Year	Diazepam	Chlordiazepoxide	Methaqualone
1966.....	211.4	756.0	530.0
1967.....	311.5	898.0	440.0
1968.....	457.1	1,094.0	1,530.0
1969.....	720.0	1,148.5	3,020.0
1970.....	980.8	1,123.5	4,540.0
1971.....	1,349.7	1,204.0	5,330.0
1972.....	1,484.0	1,029.5	5,920.0

* Figures courtesy of the Canadian pharmaceutical industry and Intercontinental Medical Statistics. As 'discount houses' were not surveyed prior to 1971, the 1966 to 1970 data are thought to under-project sales of these drugs by approximately eight per cent.

Health and Welfare. Medical practitioners may only prescribe, administer, give, sell or furnish barbiturates to patients who are under their professional care and who require this drug for the condition for which they are receiving treatment. Hospitals are prohibited from dispensing or administering barbiturates without the authorization or prescription of a medical practitioner. Pharmacists may supply barbiturates to hospitals and, upon receipt of a written or verified verbal prescription or order, to private persons. Licensed dealers, pharmacists, medical practitioners and hospitals must keep records of all transactions involving controlled drugs for at least two years in a form which can be readily inspected, and must notify the Minister of National Health and Welfare of any "loss or theft of a controlled drug". Trafficking and possession for the purpose of trafficking in barbiturates (but not the unauthorized simple possession of them) are prohibited under the *Food and Drugs Act*.

Barbiturates are generally divided into three categories: 'short-acting', 'intermediate-acting', and 'long-acting' (see Appendix A.7 *Barbiturates and Their Effects*). Table B.16 shows the annual estimated consumption of each type of barbiturate based on the formula: Imports — Exports = Estimated

TABLE B.15
ESTIMATED LICIT SALES OF DIAZEPAM, CHLORDIAZEPOXIDE AND METHAQUALONE, BY DOSAGE UNITS, FOR THE YEARS 1966 THROUGH 1972*
(in millions of capsules or tablets)

Year	Diazepam			Chlordiazepoxide			Methaqualone		
	2 mg.	5 mg.	10 mg.	5 mg.	10 mg.	25 mg.	150 mg.	250 mg.	300 mg.
1966.....	8.2	31.4	3.7	7.4	61.4	4.2	1.4	.8	.4
1967.....	15.5	45.3	5.4	12.7	68.7	5.9	.8	.8	.4
1968.....	14.5	66.6	9.5	15.8	77.0	9.8	.7	5.1	.5
1969.....	31.0	103.4	14.1	19.0	79.6	10.3	.8	11.0	.5
1970.....	31.9	135.2	24.1	17.5	81.6	8.8	1.1	16.9	.5
1971.....	49.1	188.1	31.1	16.2	86.1	10.6	.7	20.3	.5
1972.....	53.0	211.2	32.2	18.3	69.8	9.6	.7	23.3	3.3

*Figures courtesy of the Canadian pharmaceutical industry and Intercontinental Medical Statistics. As 'discount houses' were not surveyed prior to 1971, the 1966 to 1970 data are thought to underproject sales of these drugs by approximately eight per cent.

(domestic) Consumption.* From this table it can be seen that there has been approximately a 24 per cent decline in the total estimated consumption of barbiturates between 1966 and 1972.

TABLE B.16

ESTIMATED CONSUMPTION OF BARBITURIC ACID AND ITS SALTS AND DERIVATIVES,
FOR 1966-1972, IN KILOGRAMS

Year	Short-Acting	Intermediate-Acting	Long-Acting	Total
1966.....	8,759.150*	8,840.895	10,402.978	28,003.023
1967.....	9,572.044†	10,017.658	10,151.493	29,741.195
1968.....	8,879.493	8,723.557	9,672.906	27,275.956
1969.....	9,433.699	9,250.755	11,478.181	30,162.635
1970.....	9,798.955	8,721.757	8,040.205	26,560.917
1971.....	9,307.941	7,002.976	4,445.667	20,753.584
1972.....	6,810.155	5,020.993	9,534.311	21,365.459

Source: Bureau of Dangerous Drugs. Estimated Consumption: Schedule "G" drugs, for calendar years 1966-1972 inclusive, n.d. (Mimeo).

* 1,000 kilograms returned—substandard.

† 78.508 kilograms returned—substandard.

While there is considerable disagreement as to barbiturate standard-dose units (primarily depending on whether one is speaking of these drugs' use for day-time sedation or nocturnal sleep inducement), it is still apparent that Canadians consume a very substantial number of barbiturates. When the 'consumption' figures presented in Table B.16 are analysed in terms of the Bureau of Dangerous Drugs' standard conversion factors of 'average unit doses' (100 mg. for short-acting, 60 mg. for intermediate-acting, and 30 mg. for long-acting barbiturates),²⁸ it can be seen that the estimated consumption for 1972 was nearly one-half billion barbiturate capsules or tablets. This is enough to provide every Canadian over 15 years of age with about 30.3 individual units of barbiturates. The estimated consumption of barbiturates in 'average unit doses' is presented in Table B.17.

* 'Estimated consumption' does not represent actual sales figures to hospitals and retail pharmacies but, rather, the amounts of barbituric acid and its salts and derivatives available for medical use. Some of the barbiturates included in 'estimated consumption' are thus at processing or wholesale levels of the distribution network and have not actually been consumed.

TABLE B.17

ESTIMATED CONSUMPTION OF BARBITURIC ACID AND ITS SALTS AND DERIVATIVES,
IN AVERAGE UNIT DOSES, FOR 1966-1972

Year	Short-Acting	Intermediate-Acting	Long-Acting	Total
1966.....	87,591,500	147,348,250	346,765,933	581,705,683
1967.....	95,720,440	166,960,967	338,383,100	601,064,507
1968.....	88,794,930	145,392,617	322,430,200	556,617,747
1969.....	94,336,990	154,179,250	382,606,033	631,122,273
1970.....	97,989,550	145,362,617	268,006,833	511,359,000
1971.....	93,079,410	116,716,267	148,188,900	357,984,577
1972.....	68,101,550	83,683,217	317,810,400	469,595,134

Combining the data presented in Table B.17 with those in Table B.15 indicates that the estimated consumption of sedative-hypnotic drugs in 1972 was over 890 million individual unit doses. As Table B.15 does not include several types of minor tranquilizers and non-barbiturate sedative-hypnotics (such as meprobamate and glutethimide), it is not unreasonable to assume that actual 1972 consumption of all sedative-hypnotics was closer to one billion individual unit doses. This was sufficient to provide every Canadian over 15 years of age with approximately 64 individual units of these drugs in 1972.

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

It appears that all the sedative-hypnotics and minor tranquilizers used in Canada, both medically and non-medically, originate from licit sources. Some diversion of these drugs at different levels of the legitimate manufacturing and distribution systems does occur, however, channelling these substances into the illegal market.

The legal status of barbiturates is different from that of the minor tranquilizers and the non-barbiturate sedative-hypnotics (see "Legal Sources and Legal Distribution", above). In 1961 barbiturates and amphetamines were legally classified as "controlled drugs" after the R.C.M. Police gained knowledge supporting the belief that there was a substantial underworld traffic in barbiturates in some dance halls, restaurants, cafés, and beer parlours. Stricter measures did not serve to totally erase the illicit sale of these substances, however, and a large black market in sedatives still exists. Although it is impossible to say how many sedative-hypnotics make their way into illegal distribution channels, it is certain that it is a large number. Many minor tranquilizers and sedative-hypnotics are illegally trafficked in Canada, and individuals in multiple drug-using scenes seem to have little trouble acquiring these drugs.

The minor tranquilizers and sedative-hypnotics make their way from the licit distribution system to the illicit one at various junctures. An un-

known amount of pharmaceutical sedatives enter illicit channels of distribution through theft from manufacturers' and wholesalers' stocks. Commission field work in Toronto, during the summer of 1970, found that counterfeit Seconals® were being sold to multiple drug users, speed freaks and young heroin users. Illicit barbiturate dealers apparently purchased or otherwise obtained the secobarbital in pound lots and then 'capped' it themselves in gelatin capsules which were most likely procured from local drug stores.²⁴ Similarly, a Montreal man was recently found in possession of 26.56 pounds of phenobarbital which were alleged to be part of a theft of 31 barrels of this drug from Montreal harbour in June 1972.^{17, 23} In 1971 there were seven thefts of controlled drugs (barbiturates and amphetamines) from drug wholesalers reported by the Bureau of Dangerous Drugs.⁵ As tranquilizers and sedative-hypnotics are not "controlled drugs", there are no comprehensive records of thefts of these substances from manufacturers and wholesalers. It is to be expected, however, that these are stolen with at least the same frequency as barbiturates and amphetamines.

The minor tranquilizers, barbiturates and other sedative-hypnotics are most susceptible to theft when they are in the hands of the approximately 4,800 pharmacies in Canada. Preliminary Bureau of Dangerous Drugs tabulations indicate that there were 266 reported thefts of barbiturates during 1972.⁴ During 1971 the Bureau of Dangerous Drugs recorded thefts of 19,195 grams of barbiturates. This converts to more than one-quarter million individual doses stolen during that year. Table B.18 shows the thefts of barbiturates from 1966 to 1971. The first column represents the quantities stolen in grams, and the second column transforms the quantities stolen into the minimum number of individual doses that can be converted from these bulk amounts.

TABLE B.18
REPORTED THEFTS OF BARBITURATES IN CANADA

Year	Grams	Individual Doses*
1966.....	3,567	35,670
1967.....	7,110	71,100
1968.....	21,525	215,250
1969.....	13,398	133,980
1970.....	14,783	147,830
1971.....	19,195	267,100

Sources: McKim, T. R. (Director, Bureau of Dangerous Drugs, Department of National Health and Welfare) Letter to the Commission, January 12, 1972.

McKim, T. R. (Director, Bureau of Dangerous Drugs, Department of National Health and Welfare) Letter to the Commission, November 9, 1972.

* Except for 1971 (for which year short-acting, intermediate-acting, and long-acting thefts were separately reported to the Commission), the number of individual doses represented by the bulk theft figures has been estimated on the basis of short-acting barbiturate standard-unit doses (i.e., 100 mg.). As it is improbable that all stolen barbiturates were of the short-acting variety, the first five figures in the 'individual doses' column must be seen as conservative estimates.

There is no doubt that thefts involving non-barbiturate sedative-hypnotics and minor tranquilizers also occur, as these drugs (particularly those containing methaqualone) are more widely available in the illicit marketplace than any of the barbiturate preparations.

At the retail level of the licit distribution system there appears to be some diversion of sedative preparations from pharmacies. Some users have informed Commission researchers that they have purchased such drugs from pharmacists who did not require a prescription.

At the lowest level of the licit distribution system, individuals who acquire prescriptions for sedatives may sell or give parts of their prescribed drugs to their friends and relatives. Although this type of distribution is technically illegal, it is often socially accepted, and has been found to exist among housewives, 'office buddies' and school mates.²⁵ Mellinger, in a recent study of a random sample of more than 1,000 adults in San Francisco, found that 27 per cent of his respondents procured their prescription-type drugs (including sedatives) from non-medical sources.²¹ A 'friend' was the source usually identified; a 'spouse' was not as common a source, and wives were more likely to dispense these drugs (especially tranquilizers) to their husbands than vice versa.

The use of minor tranquilizers and sedative-hypnotics is fairly common among some groups of youthful multi-drug users.¹³ Diazepam (Valium®) and chlordiazepoxide (Librium®) particularly, but also the barbiturates, have been used in Canada since the explosion of cannabis and hallucinogen use in the mid-sixties to counteract 'freak-outs'. Speed freaks have also used minor tranquilizers and sedative-hypnotics to counteract the effects of the 'crash' from extended methamphetamine use. In the last few years young persons have been increasingly using these drugs, either alone or in combination with other drugs, to achieve a 'stoned' state. A distribution system for these drugs has developed among multiple drug users in parts of Canada which is comparable to, and affiliated with, the distribution systems for cannabis and the hallucinogens.

The price of pharmaceutical sedatives on the illicit market is dependent, to a large degree, on their availability. Even in multiple drug-using scenes, where the normal course of affairs involves free distribution of small amounts of sedatives to those desiring them, shortages of these substances can force their sale to inflated prices.

In Toronto there is a well developed distribution system for barbiturates. During the summer of 1970, 50 100 mg. Seconals® sold for \$15. The winter of 1970-1971, however, brought an over-abundance of these pills and a consequent reduction in their price; they sold for \$25 per hundred doses.²⁴ In 1968, in Vancouver, 200 mg. Tuinals® were selling on the illicit market to heroin addicts for one dollar. One hundred mg. Seconals®, although less popular, sold to heroin addicts for fifty cents each.⁸

Methaqualone, a non-barbiturate sedative-hypnotic, has recently come into widespread use among some groups of multi-drug users in eastern Canada, especially in the Ottawa-Hull and Montreal areas. Pharmaceutical preparations containing methaqualone have been fairly constantly available since late 1970, and they are occasionally obtained through thefts from warehouses. They can be illegally purchased for between \$25 and \$50 per 500 capsules and then eventually resold for between twenty-five and fifty cents each.¹³ During periods of relative drought, however, the price may rise as high as one dollar per capsule or tablet.

ILLEGAL SOURCES AND ILLEGAL DISTRIBUTION

Margaret Kreig, in her book *Black Market Medicine*, states that prescription-type drugs in the United States are increasingly originating from illegal sources.¹⁶ The basic chemicals are manufactured in bulk in clandestine laboratories or may be shipped illegally into the United States from abroad. These chemicals, on entering the United States, are converted into pharmaceutical doses, in which form they either remain in the illegal distribution system or else they enter the legal stream of prescription drug distribution to be sold in retail pharmacies as legitimate prescription drugs. In Canada there is no evidence of tranquilizing or sedative-hypnotic substances either being manufactured in Canada illegally or being illegally imported into the country. All of these substances appear to be imported legally into Canada before any diversion into illicit channels of distribution occurs.

B.8 VOLATILE SUBSTANCES: SOLVENTS AND GASES

There are an uncounted number of readily and legally available volatile substances that can be used to achieve a state of intoxication. Some of the more common intoxicating solvents in everyday use include fast drying glue and cements, paints and lacquers, paint thinners and removers, gasoline and kerosene, lighter fluid, dry cleaning fluid, fingernail polish remover, and many aerosols.

The advertising, sale and importation of these substances are regulated by the *Hazardous Products Act* and the *Hazardous Products (Hazardous Substances) Regulations*. This Act and its Regulations require the identification of hazardous products and the alerting of consumers to their possible dangers by "clear", "prominently displayed", "easily legible", and "readily discernible" labelling.

The Hazardous Products Act and its *Regulations* limit neither the possession of volatile substances nor their use for psychotropic purposes. Consequently, all of the above mentioned substances are legally available to anyone regardless of age or condition. In Alberta, however, the provincial *Public Health Act* states that "no person shall use any intoxicating vapour

to produce intoxication", and provides for the prosecution of persons who induce anyone to use such a product for intoxication or who sell a product for such reason.

In contrast to other psychotropic drugs which are distributed through licit or illicit 'drug dealers', volatile substances are available in a variety of retail outlets (including hobby shops and department stores) and are ordinarily sold for mundane purposes rather than their psychotropic potential. The customary procedure for a person wishing to use a volatile substance is to simply go to a store which sells the desired product and purchase it. Although a Commission field study has uncovered instances of adolescents reselling bottles of nail polish remover for inflated prices to children who are too young to make their own purchases without arousing a retailer's suspicion as to their motives, the purchase of these substances from retail outlets is ordinarily easily accomplished.⁶ Even if an individual is a known 'sniffer' it is unlikely that he will be refused access to solvents by store vendors. According to another Commission field study, for example, a chronic glue sniffer in Winnipeg has purchased as many as 30 tubes of glue at a time from a retail store without encountering any difficulty.⁹ In fact, in some Canadian cities store owners have been known to sell 'kits' (containing nail polish remover, a plastic bag and Kleenex®) to recognized solvent users.⁶

While paint thinner is the most popular solvent in Japan and in the Scandinavian countries, in North America airplane glue and nail polish remover (especially Cutex®) are the solvents most often used for psychotropic purposes. Airplane glue is available in hobby stores, in the toy sections of department stores, as well as in many corner stores. Some stores take the precaution of placing the tubes under a counter so that they will not be stolen, but most stores display them openly. A tube of glue can be purchased for between fifteen and twenty cents. A few deep inhalations of the solvent is usually sufficient to render at least a novice user intoxicated, and several individuals can reportedly achieve a desired state of intoxication with one fifteen cent tube (usually containing about 20 c.c. of the glue).⁴ A chronic user, after extended experience with the substance, may require up to five tubes to achieve intoxication, which obviously increases his cost.⁴ Lacking money to buy glue, some juveniles simply steal it or steal money with which to purchase it.²

'Testor's' glue was the most popular volatile solvent in Canada prior to 1968. In that year, however, this company added allylisothiocyanate (a volatile oil of mustard) to their glue which rendered it unpalatable to sniffers.³ This led users to switch from Testor's to their competitors, as well as to some of the countless other solvent-containing products in everyday use.

There are other, less readily available products included in the category 'volatile substances'. Nitrous oxide and ether (the medical anesthetics) are occasionally used by a small number of individuals to experience a drug effect. Nitrous oxide, or 'laughing gas', can be procured through dentists, and

ether can be obtained through physicians and hospital anesthetists. It is also reportedly possible to order and receive cylinders of nitrous oxide without legal risk from some companies that stock this substance.

B.9 TOBACCO

LEGAL SOURCES AND LEGAL DISTRIBUTION

During the 19th century, Ontario developed as the principal tobacco-growing area of Canada, a trend that has continued to the present. Ontario now produces over 90 per cent of the tobacco grown in Canada, including significant export quantities. Although tobacco was grown in Quebec at an earlier date than in Ontario, it presently accounts for less than seven per cent of the total national production. Likewise, Prince Edward Island, Nova Scotia and New Brunswick produce a small amount; only experimental tobacco crops have been planted west of Ontario.

Canada is fifth in the world in the production of flue-cured tobacco. Total annual 1970 Canadian production of all types of tobacco was estimated to be approximately 222 million pounds, green weight, an estimated 214 million pounds of which were flue-cured. This represented a total estimated farm value of \$142.9 million.¹⁰

Tobacco is second only to wheat in Canadian agricultural exports.⁹ Flue-cured tobacco exports in 1971 were estimated to be 48.5 million pounds, valued at somewhat more than \$53 million. Eighty-five per cent of this tobacco was exported to the United Kingdom.⁹ Only about two per cent of all tobacco consumed in Canada is imported.² As can be seen from Table B.19, Canadians consume a substantial number of cigarettes. It is of some interest to note that the per capita consumption of cigarettes by Canadians 15 years of age and over decreased between 1966 and 1969; however, the per capita rate of cigarette consumption had returned to the 1967 level by 1972.¹⁴ For further information on the epidemiology of tobacco use in Canada, see Appendix C.2 *Extent of Use*, "Tobacco".

The cultivation of tobacco is a significant source of income and employment in Canada. In 1970, the total estimated capital investment in tobacco farms in Canada was \$436 million. About 9,500 full-time and 40,000 seasonal workers are employed in the cultivation and harvesting of this product.⁸ The manufacturing and processing of tobacco products involve an additional 1,500 employees with a total payroll of about \$60 million. Purchases of materials by manufacturers, excluding tobacco, run to about \$40 million annually and, in 1967, their advertising budgets approached \$15 million. In addition, the number of share holders in tobacco manufacturing firms is in excess of 17,500.⁸

TABLE B.19
CONSUMPTION OF MANUFACTURED AND HAND-ROLLED CIGARETTES, FROM 1966 TO 1972

Year	Consumption of manufactured cigarettes (in thousands)	Consumption of hand-rolled cigarettes (in thousands)†	Consumption of manufactured plus hand-rolled cigarettes (in thousands)	Population 15 years of age and over (in thousands)	Consumption of manufactured cigarettes plus hand- rolled cigarettes per person 15 years of age and over
1966*	46,275,981	6,897,459	53,173,440	13,423	3,961
1967*	46,864,890	6,496,183	53,361,073	13,812	3,863
1968*	46,258,100	6,988,581	53,246,681	14,179	3,755
1968-9†	45,976,997	6,776,000	52,752,997	14,461	3,648
1969-70†	48,901,204	6,873,000	55,774,204	14,814	3,765
1970-71†	50,386,465	7,122,000	57,508,465	15,159	3,794
1971-72†	52,982,522	6,949,000	59,931,522	15,508	3,865

Source: Colburn, H. N. (Director, Use of Tobacco Program, Department of National Health and Welfare) Letter to the Commission, with relevant tables, February 22, 1973.

* Calendar year.

† November 1 to October 31.

‡ Calculated with a conversion factor of 2.205 pounds of fine cut tobacco per 1,000 cigarettes.

The industry also reflects significant economic activity at the wholesale and retail levels. Tobacco products are distributed through some 90,000 retail outlets and 650 wholesale and distribution enterprises.⁸ In 1969 the combined wholesale and retail annual income of the tobacco industry was estimated to be about \$180 million.⁸

The greatest financial benefits of the tobacco industry accrue, however, to the federal and provincial governments. In 1971 total Federal Government revenue from excise taxes and sales taxes collected on tobacco products totalled \$620 million.¹⁵ In 1968 federal tobacco taxes accounted for about six per cent of total Federal Government revenues.⁸ The provinces, in 1971, collected about \$215 million in tobacco taxes, and tobacco manufacturers paid an additional \$29 million in corporate taxes.¹⁵ In all, federal and provincial taxes account for more than 60 per cent of the retail price of tobacco products in Canada.⁸

The distribution of tobacco products is controlled by both federal and provincial government statutes and regulations. At the federal level, the *Excise Act* determines the tax that must be paid by the manufacturer. This system of tax collection is implemented through a stringently-controlled series of measures, including licensing and bonding of the manufacturer, monthly returns regarding his sales and purchases, annual reporting of his equipment inventory, and a requirement to make available to government inspectors, when requested, company books, accounts and papers.

Another federal statute, the *Tobacco Restraint Act*, regulates some aspects of the distribution of tobacco products. It prohibits the sale or giving of any tobacco product, or cigarette papers, to anyone under the age of 16 years. This prohibition carries with it a sanction in the form of fines of up to \$10 for a first offence, up to \$25 for a second offence and up to \$100 for a third or subsequent offence. This Act also prohibits persons under the age of 16 years from purchasing tobacco, having it in their possession, or smoking or chewing tobacco in a street or public place. The maximum fine for a third or subsequent offence is four dollars. This statute also prohibits keepers of cigarette vending machines from permitting their use by persons under 16 years of age.

All the provinces of Canada levy a cigarette tax which, in every case, must be collected by the retailer from the customer. While taxation levels vary from province to province, a number of administrative devices are common to all the provinces. For example, all retail vendors of tobacco products must receive a license from the provincial government; and the onus is on the retailer to ensure that, regardless of the price at which the product is sold, the full tax is paid to the province.

Each province also has legislation governing the minimum age of persons to whom tobacco products may be sold. In most respects, the provincial statutes resemble the federal *Tobacco Restraint Act*, although most provinces make an exception in the case of a child who is obtaining a tobacco product on behalf of a parent, guardian or, in some cases, an employer.

Because tobacco products—unlike alcohol—are not distributed under government monopoly, there are few limitations, other than those listed above, on the manner in which they may be distributed. However, as of January 1, 1972, the Canadian Tobacco Manufacturers Council (composed of four major cigarette manufacturing companies) committed its members to a 'Cigarette Advertising Code' governing the advertising of all cigarettes.¹² This Cigarette Advertising Code contains a number of voluntary restraints on cigarette advertising, including the following provisions: that member companies shall not advertise cigarettes on television or radio after December 31, 1971, and shall limit advertising expenditures in remaining media to 1971 levels; that cigarette packages produced after April 1, 1972 shall bear a warning that the Department of National Health and Welfare advises that danger to health increases with the amount smoked; that cigarette promotions involving incentive programs offering to the consumer cash or other prizes shall be discontinued; that the average tar and nicotine content of cigarette smoke shall not exceed 22 milligrams of tar, moisture-free weight, and 1.6 milligrams of nicotine per cigarette; and that cigarette advertising shall be addressed to the adult population of Canada, with a concomitant ban on cigarette promotions in the immediate vicinity of primary or secondary schools.

LEGAL SOURCES AND ILLEGAL DISTRIBUTION

Since the cultivation of tobacco is not prohibited in Canada, there are technically no illegal sources of this drug. All illegal tobacco distribution that does occur involves customs or excise violations, theft, and the possession by or sale to minors of tobacco products.

The smuggling and bootlegging of tobacco does not appear to be a major problem in Canada. There is some evidence that cigarettes are regularly smuggled into Newfoundland from the duty-free port of Saint Pierre, where they sell for two dollars a carton.¹⁹ However, according to a recent *Annual Report of the Solicitor General of Canada*, this type of commercial venture is atypical as "the majority of [customs] seizures were of items illegally brought into Canada for personal use".⁵ While it is impossible to estimate the total amount of such smuggling and bootlegging (or the consequent loss in federal and provincial tax revenues), Table B.20, which reports the extent of tobacco seizures between the fiscal years 1966–67 and 1971–72, indicates the widespread nature of this phenomenon.

The theft of tobacco products at the wholesale level has also been occasionally reported.^{11, 18} Unfortunately, however, Canadian criminal statistics do not permit the identification of arrests or convictions solely related to tobacco thefts, so the extent of such activity cannot be ascertained at this time.

Since federal and provincial laws regulating the possession and sale of tobacco products are primarily directed at juveniles (see B.9 *Tobacco*, "Legal Sources and Legal Distribution", above), the chief offenders of these laws are persons under 16 years of age and those who sell to them. These

TABLE B.20

SUMMARY OF TOBACCO SEIZURES, UNDER THE CUSTOMS AND EXCISE ACTS FOR
FISCAL YEARS 1966-67 TO 1971-72

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Cigarettes (cartons)*	1,477	1,587	2,261	2,604	1,827	2,369
Tobacco (pounds)†	288	602	236	1,412	2,373	308

Sources: Canada, Solicitor General of Canada. *Annual Report, 1969-70*. Ottawa: Information Canada, 1970.
Canada, Solicitor General of Canada. *Annual Report, 1970-71*. Ottawa: Information Canada, 1971.
Canada, Solicitor General of Canada. *Annual Report, 1971-1972*. Ottawa: Information Canada, 1972.

* Newfoundland, Nova Scotia, Quebec, Ontario and British Columbia account for between 97 and 99 per cent of these customs violations; the majority, on a pro rata basis, occurred in Newfoundland.

† Nearly all of these excise violations occurred in Ontario and Quebec.

laws, however, are very infrequently enforced. An examination of the Annual Police Reports of the major cities in Canada for 1969 reveals that only one city, Ottawa, reports a breach of the *Tobacco Restraint Act*—and that single arrest occurred in 1966.¹⁷ In 1968 only three juveniles in all of Canada appeared before a court for smoking and buying cigarettes, and all three cases were adjourned *sine die*.⁷

Even casual observation, however, indicates that minors smoke openly in every Canadian community. While there are no studies extant of how these youths obtain tobacco, the retailing of cigarettes is such that anyone with the correct change and the requisite skill can easily obtain them from unattended vending machines. Juveniles can also purchase cigarettes, by the pack or single cigarettes, from many corner stores, or can arrange for older friends or relatives to buy tobacco products for them. Cigarettes, of course, can also be easily stolen (since few persons keep track of the number of cigarettes in their possession at any given time), or they may be freshly rolled from 'butts' collected in various public places. The laws restricting tobacco possession and use to those 16 years of age and over appear to be generally unenforceable.

References and Selected Bibliographies

B.2 OPIATE NARCOTICS

1. Agent France Presse. Second coup de filet de la police française: 320 lb de morphine base sont saisies dans une voiture venant de Turquie. *Le Devoir* (Montreal), March 7, 1972: 10.
2. Aldrich, M. R. Prolegomena: America's drugging of China in 1920's; the Ginsberg files; the Karnow reports; relevant notes from Ginsberg files; Operation Haylift; the Tunney charges; China lobby, Watergate East: Suppressed information starting with Koen's book; CIA names named...; who knows? Unpublished manuscript, Amorphia, Inc., San Francisco, Calif., 1973.
3. Aldrich, M. R. The secret of the Laos invasion 1971: Opium notes for Peace and Freedom Party of Long Beach, California. Paper presented at the meeting of U.S. College Press Service editors, Los Angeles, Calif., February 1971.
4. Aldrich, M. R. U.S. Central Intelligence Agency complicity in the South East Asian narcotics trade: A confidential report and annotated bibliography, 1945-1972. Unpublished manuscript, Amorphia, Inc., San Francisco, Calif., 1973.
5. Anderson, J. Playing tricks. *New York Post*, October 17, 1972.
6. Anslinger, H. J. The implementation of treaty obligations in regulating the traffic in narcotic drugs. *American University Law Review*, 1959, 8: 112-116.
7. Anslinger, H. J. *The protectors*. New York: Farrar, Straus and Cudahy, 1962.
8. Anslinger, H. J., & Oursler, W. *The murderers: The story of the narcotic gangs*. New York: Farrar, Straus and Cudahy, 1961.
9. Associated Press. Brazil to expel seven arrested in dope probe. *Globe and Mail* (Toronto), November 17, 1972: 12.
10. Associated Press. Burmese seize plants. *New York Times*, May 19, 1959.
11. Associated Press. Chinese in Burma in opium-gun deal. *New York Times*, March 9, 1952: 8.
12. Associated Press. Heroin intrigue: U.S., Brazil make real French connection. *Ottawa Citizen*, November 18, 1972.
13. Associated Press, Laotian general drug pusher, Steele claims. *Globe and Mail* (Toronto), July 12, 1971: 4.
14. Associated Press. U.S. sends agents: Three tons of opium seized in Thai raids. *Globe and Mail* (Toronto), July 25, 1972: 37.
15. Associated Press-Reuters News Agency. 3 French suspects whisked from Brazil to U.S. *Toronto Star*, November 18, 1972.
16. Belair, F., Jr. A Saigon general named as a trafficker in heroin. *New York Times*, July 8, 1971: 1.
17. Belair, F., Jr. U.S. troops supplied with heroin from 21 opium refineries in Laos-Burma-Thailand area. *Globe and Mail* (Toronto), June 17, 1971: 10.
18. Berrigan, D. They smuggle dope by the ton. *Saturday Evening Post*, May 5, 1956: 42.
19. Binder, D. Munich called entry for Mideast heroin. *New York Times*, June 15, 1972: 1.

20. Blackwell, J. C. B.D.D. catchment population. Unpublished Commission research project, 1972.
21. Blanchard, W. *Thailand: Its people, its society, its culture*. New Haven, Conn.: Human Relations Area Files Press, 1958.
22. Bloomfield, R. Cooperative measures with Mexico to control the traffic in narcotics. Paper presented at the White House Conference on Narcotics and Drug Abuse, Washington, D.C., September 27-28, 1962.
23. Blum, R. H., & Associates. *The dream sellers*. San Francisco: Jossey-Bass, 1972.
24. Braden, T. W. I'm glad the CIA is 'immoral'. *Saturday Evening Post*, May 20, 1967: 10.
25. Branfman, F. Presidential war in Laos, 1964-1970. In N. S. Adams & A. W. McCoy (Eds.), *Laos: War and revolution*, New York: Harper Colophon, 1970. Pp. 213-280.
26. Brean, H. A global criminal trade. In Time, Inc., *The drug takers*. New York: Time, Inc., 1965. Pp. 34-43.
27. Browning, F., & Garrett, B. The new opium war. *Ramparts*, 1971, 9(10), 32-39.
28. Bulletin on Narcotics. Illicit traffic in heroin. *Bulletin on Narcotics*, 1953, 5: 45-48.
29. Bulletin on Narcotics. Twenty years of narcotics control under the United Nations: Review of the work of the Commission on Narcotic Drugs from its 1st to its 20th session. *Bulletin on Narcotics*, 1966, 18: 1-59.
30. Butterfield, F. Lao's opium country resisting drug law. *New York Times*, October 16, 1972: 12.
31. Campbell, I., & Solomon, R. Interviews with officials of the United States Bureau of Narcotics and Dangerous Drugs, Washington, D.C. Unpublished Commission research project, 1971.
32. Campbell, I., & Solomon, R. Interviews with officials of the United States Bureau of Narcotics and Dangerous Drugs, Washington, D. C. Unpublished Commission research project, 1972.
33. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Number of thefts involving specific narcotics during 1971. Unpublished paper, Ottawa, 1972.
34. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Reported thefts of narcotics during the calendar year 1971. Unpublished paper, Ottawa, 1972.
35. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Statement showing seizures of narcotic drugs during the calendar years 1970-71. Unpublished paper, Ottawa, May 2, 1972.
36. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Table showing estimated consumption of the main narcotics for the period 1961-1971 inclusive. Unpublished paper, Ottawa, April 5, 1972.
37. Canada, House of Commons. Methadone and amphetamines—Statement on action to control abuse. *Commons Debates*, February 24, 1972.
38. Canada, Senate. *Proceedings of the Special Committee on the Traffic in Narcotic Drugs in Canada*. Ottawa: Queen's Printer, 1955.
39. Canadian Press. Big heroin seizure worth \$28 million. *Ottawa Citizen*, June 23, 1971: 4.
40. Canadian Press. Montreal heroin dealer hurt as Vancouver buyers switch. *Montreal Star*, July 19, 1972.
41. Cauble, M. The "Red Chinese connection" and Interpol's concern with Southeast Asian narcotics production in 1966. Unpublished paper, Amorphia, Inc., San Francisco, Calif., December 20, 1972.

42. Collins, L., & Lapierre, D. The French connection—in real life. *New York Times Magazine*, February 6, 1972: 14-15, & 51-55.
43. Columbia Broadcasting System. *CBS reports: The Mexican connection*. Unpublished transcript of CBS network television broadcast, June 25, 1972, New York, 1972.
44. Committee of Concerned Asian Scholars. *The opium trail: Heroin and imperialism*. (2nd ed.) Boston, Mass.: New England Free Press, 1972.
45. Cooper, P. Technical information on cocaine and heroin. Unpublished Commission research paper, 1971.
46. Express (London) Service. Brazilians will send home Italian narcotics kingpin. *Toronto Star*, November 18, 1972.
47. Feingold, D. Opium and politics in Laos. In N. S. Adams, & A. W. McCoy (Eds.), *Laos: War and revolution*. New York: Harper Colophon, 1970. Pp. 322-339.
48. France, Ambassade de France, Service de Presse et d'Information. A few facts on narcotics control in France. Press release, New York, n.d.
49. France, Ambassade de France, Service de Presse et d'Information. French-American cooperation on narcotics control agreement signed February 26, 1971. Press release, New York, March 1, 1971.
50. France, Ambassade de France, Service de Presse et d'Information. Joint communique on French-American cooperation on narcotics control issued at the close of the visit to Washington of Raymond Marcellin, French Minister of the Interior on Friday, July 31, 1970. Press release, New York, n.d.
51. Gage, N. East coast heroin flow is reported cut. *New York Times*, July 28, 1972: 4.
52. Gage, N. 45 drug arrests in Europe are based on evidence compiled by U.S. agents. *New York Times*, October 1, 1971.
53. Gage, N. *The Mafia is not an equal opportunity employer*. New York: McGraw-Hill, 1971.
54. Gayn, M. The generals are the wheeler-dealers in Asia's great drug racket. *Toronto Star*, August 13, 1971: 8.
55. Giniger, H. Drug issue hits home in Marseilles. *New York Times*, September 7, 1971: 1.
56. Goldner, S. Field reports: Montreal. Unpublished Commission research project, 1971.
57. Gormely, S. Methadone controls aimed at ending abuse by doctors. *Toronto Star*, July 21, 1972: 11.
58. Green, M., & Blackwell, J. C. Final monitoring project. Unpublished Commission research paper, 1972.
59. Green, T. *The smugglers: An investigation into the world of the contemporary smuggler*. New York: Walker, 1969.
60. Gregg, R. W. The politics of international drug control. *American Bar Association Journal*, 1963, 49: 176-179.
61. Halpern, J. M. *Economy and society of Laos*. Yale University Monograph No. 5 (Southeast Asia Studies). New Haven: Yale University Press, 1964.
62. Harvey, P. The drug trail. I. The million dollar arteries of death. *Guardian* (Manchester), December 10, 1971: 13.
63. Harvey, P. The drug trail. II. The shadows that hide the opium sharks. *Guardian* (Manchester), December 11, 1971: 11.
64. Hersh, S. M. Asian drug inflow found 'greater than realized'. *New York Times*, July 28, 1972: 3.
65. Hersh, S. M. Drug flow can't be halted, U.S. told. *Montreal Star*, July 24, 1972: 1.

66. Hess, J. L. U.S. agent's drug charges anger the French police. *New York Times*, August 27, 1971: 2.
67. Hogarth, J. Field reports: Toronto. Unpublished Commission research project, 1969.
68. Hogarth, J. Interviews with R. C. M. Police officers: Halifax and St. John. Unpublished Commission research project, 1970.
69. Holahan, J. F., & Henningsen, P. A. The economics of heroin. In Drug Abuse Survey Project (Ed.), *Dealing with drug abuse: A report to the Ford Foundation*. New York: Praeger, 1972.
70. Howe, M. Brazil reports drug ring broken: Says chiefs of international trafficking are arrested. *New York Times*, November 2, 1972: 6.
71. Hughes, J. The junk merchants: International narcotics traffic. Part 1. World junk traffic: 'We're dealing with an epidemic'. *Christian Science Monitor*, May 29, 1970: 15-16.
72. Hughes, J. The junk merchants: International narcotics traffic. Part 2. Turkey principal U.S. source—Legal opium production spawns illegal trafficking. *Christian Science Monitor*, June 2, 1970: 11-12.
73. Hughes, J. The junk merchants: International narcotics traffic. Part 3. Marseille—Hub of heroin industry: Risks greater but profits fatter. *Christian Science Monitor*, June 5, 1970: 13.
74. Hughes, J. The junk merchants: International narcotics traffic. Part 4. Iran's strict drug controls: Good intentions no barrier to traffickers. *Christian Science Monitor*, June 9, 1970: 13.
75. Hughes, J. The junk merchants: International narcotics traffic. Part 5. Ominous trend. Young people on 'pot trail' graduate to narcotics smuggling. *Christian Science Monitor*, June 12, 1970: 11.
76. Hughes, J. The junk merchants: International narcotics traffic. Part 6. Thailand: 'Four-lane' drug highway. *Christian Science Monitor*, June 16, 1970: 6.
77. Hughes, J. The junk merchants: International narcotics traffic. Part 7. Hong Kong's thriving opium traffic: Focal point for Far East narcotics. *Christian Science Monitor*, June 19, 1970: 11.
78. Hughes, J. The junk merchants: International narcotics traffic. Part 8. U. N. has little power to curb trafficking: Onus for antinarcotic action rests on individual governments. *Christian Science Monitor*, June 23, 1970: 11.
79. Hughes, J. The junk merchants: International narcotics traffic. Part 9. U. S. and Mexico fight traffickers: Operation Cooperation now under way. *Christian Science Monitor*, June 26, 1970: 11.
80. Hughes, J. The junk merchants: International narcotics traffic. Part 10. Reform of addict will curb trafficking: 'Solution to his problem must be a metaphysical one'. *Christian Science Monitor*, June 30, 1970: 11.
81. Hunter, C. Addicts are 'copping garbage' in face of drug shortage here. *New York Times*, November 30, 1971: 28.
82. Hutten, M. Selon les autorités américaines, la France lutte trop mollement contre le trafic de la drogue. *La Presse* (Montreal), September 8, 1971: A4.
83. International Criminal Police Organization (INTERPOL). Illème colloque sur le trafic illicite des stupéfiants. Unpublished transcript, Saint-Cloud, France, October 14-16, 1970.
84. International Criminal Police Organization (INTERPOL), Committee on Narcotic Drugs. Account of the meeting. Unpublished transcript, 39th General Assembly Session, Brussels, Belgium, October 5-10, 1970.
85. Josie, G. H. *A report on drug addiction in Canada*. Ottawa: King's Printer and Controller of Stationery, 1948.

86. Kamm, H. Asians doubt that U.S. can halt heroin flow. *New York Times*, August 11, 1971: 1.
87. Kamm, H. Meo general leads tribesmen in war with communists in Laos. *New York Times*, October 27, 1969.
88. Kamm, H. Turkish ban on poppy: Delayed impact seen. *New York Times*, October 10, 1972: 1.
89. Kaplan, M. Philippine diplomat seized here as heroin smuggler. *New York Times*, November 12, 1971: 93.
90. Karnow, S. Opium. *Saturday Evening Post*, February 22, 1964: 80-82.
91. Karnow, S. The opium must go through. *Life*, August 30, 1963: 11-12.
92. Katz, P. Drug city. *Oui*, 1972, 1: 29-32.
93. King, H. \$20 million heroin haul came from U.S.—French raids on traffickers. *Toronto Telegram*, October 28, 1970.
94. King, H. U.S. drugs agent riles Paris officials. *Toronto Telegram*, August 27, 1971: 42.
95. Koch, J. V., & Grupp, S. E. The economics of drug control policies. *International Journal of the Addictions*, 1971, 6: 571-584.
96. Lewis, F. Small-timers entering drug scene in France. *New York Times*, July 25, 1972: 2.
97. Liljefors, Y. Interviews with senior R. C. M. Police officers and municipal police officers: Calgary, Edmonton, Regina, and Saskatoon. Unpublished Commission research project, 1970.
98. Lubasch, A. H. 23 accused of smuggling 1,500 lbs. of heroin here. *New York Times*, January 18, 1972: 1.
99. Lyle, D. The logistics of junk. *Esquire*, 1966, 65(3): 59-67.
100. Maas, P. *The Valachi papers*. New York: Putnam, 1968.
101. Manes, R. D. A historical survey of international narcotics treaties with special reference to Canadian and U. S. participation. Unpublished Commission research paper, 1971.
102. Markham, J. M. Asian heroin ring uncovered here. *New York Times*, August 24, 1972: 1.
103. Markham, J. M. The heroin epidemic: Pace of addiction seems to have slowed, but methadone use is posing problems. *New York Times*, November 21, 1972: 28.
104. Markham, J. M. South Florida is emerging as center of drug traffic. *New York Times*, May 1, 1972: 1.
105. McCoy, A. W., with Read, C. B., & Adams, L. P., II. *The politics of heroin in Southeast Asia*. New York: Harper & Row, 1972.
106. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa). Letter to the Commission, November 9, 1972.
107. Moore, M. *Policy concerning drug abuse in New York State*. Vol. 3. *Economics of heroin distribution*. Croton-on-Hudson, N.Y.: Hudson Institute, 1970.
108. Moscow, A. *The merchants of heroin: An in-depth portrayal of business in the underworld*. New York: Dial, 1968.
109. Murphy, M. F., & Steele, R. H. *The world opium problem: Report of the special study mission*. Washington, D. C.: U. S. Government Printing Office, June 22, 1971.
110. *New York Times*. Nixon envoy visited Paraguay to seek drug figure's return. *New York Times*, August 16, 1972.
111. *New York Times*. Paraguay yields on drug suspect. *New York Times*, August 15, 1972: 7.

112. New York Times. \$2.75 million bail set in heroin case. *New York Times*, September 21, 1971.
113. New York Times. U. N. asked to oust Chinese in Burma. *New York Times*, March 27, 1953: 6.
114. Newsweek. America's battle against the 'white death'. *Newsweek*, March 29, 1971: 41-43.
115. Newsweek. The big heroin haul. *Newsweek*, March 13, 1972: 36.
116. Newsweek. Heroin: Now it's the Latin connection. *Newsweek*, January 24, 1972: 24-26.
117. Newsweek. Indochina's heroin traffic. *Newsweek*, July 19, 1971: 16.
118. Newsweek. Open secret. *Newsweek*, August 16, 1971: 30.
119. Newsweek. The U. S. scores in the war on drugs. *Newsweek*, August 28, 1972: 30-33.
120. Novitski, J. Teamwork by Latins bringing growing number of drug hauls. *New York Times*, October 10, 1972: 15.
121. O'Callaghan, S. *The drug traffic*. Belfast: W. & G. Baird, 1967.
122. Pearson, K. M. *The drug scene in Vancouver: An overview*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
123. Peck, J., & Selden, M. *Bulletin of Concerned Asian Scholars, special issue*. San Francisco: James Peck, February, 1971.
124. Preble, E., & Casey, J. T., Jr. Taking care of business: The heroin user's life on the street. *International Journal of the Addictions*, 1969, 4: 1-24.
125. Quebec, Department of Justice. Brief submitted to the Commission at Winnipeg, November 13, 1969.
126. Redlinger, L. J. *Dealing in dope: Market mechanisms and distribution patterns of illicit narcotics*. (Doctoral dissertation, Northwestern University, Evanston, Illinois) Ann Arbor, Mich.: University Microfilms, 1970, No. 70-6523.
127. Reid, E. *The anatomy of organized crime in America: The grim reapers*. Chicago: Regnery, 1969.
128. Reuters News Agency. Big heroin ring smashed with U. S. aid, French say. *New York Times*, January 17, 1972: 37.
129. Reuters News Agency. Chinese from 1950 retreat still in Burma. *Los Angeles Times*, May 27, 1971.
130. Reuters News Agency. Diplomat convicted as drug courier. *Toronto Star*, April 12, 1972: 17.
131. Reuters News Agency. Get big haul. *Gazette (Montreal)*, June 12, 1972: 11.
132. Reuters News Agency. Opium seized. *Gazette (Montreal)*, June 14, 1972: 9.
133. Reuters News Agency. \$13 million heroin haul in New York. *Montreal Star*, November 12, 1971.
134. Reuters News Agency. Worth \$1 billion: 20 tons of opium turned in. *Montreal Star*, June 16, 1972.
135. Rickenbach, R. J. Eyewitness testimony. *Harper's*, October 1972: 120-121.
136. Rottenberg, S. The clandestine distribution of heroin, its discovery and suppression. *Journal of Political Economy*, 1968, 76: 78-90.
137. Royal Canadian Mounted Police. R. C. M. P. research into organized crime and international drug traffic with replies to questions raised by the Commission. Unpublished manuscript, Ottawa, n.d.
138. Schmidt, D. A. U. S. aide hopeful on Asian drug curb. *New York Times*, July 26, 1972: 2.

139. Schmidt, D. A. U.S. seeks to end Latin drug flow. *New York Times*, November 30, 1971: 29.
140. Scott, A. Suspected heroin king flown to U.S. for trial. *Los Angeles Times*, September 3, 1972: 2.
141. Scott, P. D. Air America: Flying the U.S. into Laos. In N. S. Adams & A. W. McCoy (Eds.), *Laos: War and revolution*. New York: Harper Colophon, 1970. Pp. 301-321.
142. Scott, P. D. Heroin traffic: Some amazing coincidences linking the CIA, the Mafia, Air America, several members of the Brook Club, Chiang Kai-Shek, the Kuomintang, Prince Puchatra of Thailand, many banks and insurance companies—practically everyone except Richard Nixon. Wasn't he asked? *Earth*, 1972, 3(2): 35-42.
143. Severo, R. Inability to stem drug traffic in Panama vexes U.S. officials. *New York Times*, January 16, 1972: 19.
144. Siragusa, C. *The trail of the poppy: Behind the mask of the Mafia*. Englewood Cliffs, N.J.: Prentice-Hall, 1966.
145. Solomon, R. The criminal prohibition of non-medical opiate use in Canada. Unpublished Commission research paper, 1972.
146. Solomon, R. Interview with senior R.C.M. Police officers: R.C.M. Police Headquarters, Ottawa. Unpublished Commission research project, 1972.
147. Solomon, R. Interviews and participant observation with senior R.C.M. Police and municipal police officers: Vancouver. Unpublished Commission research project, 1970.
148. Solomon, R. Interviews with heroin addicts in east-wing, Oakalla Prison Farm, Oakalla, B.C. Unpublished Commission research project, 1971.
149. Solomon, R. Interviews with senior R.C.M. Police officers and municipal police officers: Montreal, Ottawa, Toronto, and Winnipeg. Unpublished Commission research project, 1971.
150. Solomon, R. Telephone interview with senior official of the United States Bureau of Narcotics and Dangerous Drugs, Washington, D.C. Unpublished Commission research project, December 12, 1972.
151. Solomon, R., & Green, E. M. Customs and the illicit heroin traffic. Unpublished Commission research paper, 1971.
152. St. Louis Post-Dispatch. Crusade against drugs masks facts in Saigon. *Vancouver Sun*, August 27, 1971: 5.
153. Stoddart, K. W. Drug transactions: The social organization of a deviant activity. Unpublished Master's thesis, Department of Sociology, University of British Columbia, 1968.
154. Strock, C. No news from Laos. *Far Eastern Economic Review*, January 30, 1971: 18.
155. Sunday Times (London) Service. Politicians, drug gangs linked in France. *Edmonton Journal*, September 28, 1970: 5.
156. Sutton, H. Drugs: Ten years to doomsday? *Saturday Review*, November 14, 1970: 18-21.
157. Tara, S. Southeast Asia: Super supplier of heroin. *World*, 1972, 1(1): 68-74.
158. Thailand, Ministry of Interior. *Report on the socio-economic survey of the hill tribes in Northern Thailand*. Bangkok, Thailand, September 1962. United Nations document number E/CN.7/450.
159. Time, Inc. Drugs: Moving towards the killers. *Time*, August 23, 1971: 4-6.
160. Time, Inc. The French connection. *Time*, November 29, 1971: 6.
161. Time, Inc. Laos: Flower power struggle. *Time*, September 8, 1967: 28-29.
162. Time, Inc. Laos: The twilight zone. *Time*, August 16, 1971: 29-30.

163. Time, Inc. Search and destroy—the war on drugs. *Time*, September 4, 1972: 12-18.
164. Time, Inc. The smuggling scandal. *Time*, March 23, 1962: 10.
165. Tomalty, G. L. (Officer in Charge, R.C.M. Police Drug Enforcement Branch, Ottawa). Letter to the Commission, December 15, 1972.
166. Topping, S. New Chiang raids in China reported, *New York Times*, May 18, 1965: 1.
167. United Nations, Division of Narcotic Drugs. *Information letter to members of the Commission [on Narcotic Drugs]*. United Nations document ST/NAR/INF/R. 1970/10, September 7, 1970.
168. United Nations, Division of Narcotic Drugs. *Information letter to members of the Commission [on Narcotic Drugs]*. United Nations document ST/NAR/INF/R. 1971/2, July 15, 1971.
169. United Nations, Division of Narcotic Drugs. Opiates and their alternates for pain and cough relief: Report of a WHO scientific group. *Information letter*. United Nations document NAR/INF. Lett./72-10, October 1972. P. 2.
170. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *List of Chapters XI (illicit traffic) of Annual Reports for the year 1969 transmitted by Governments under the International Narcotic Treaties*. United Nations document E/IT/1969, March 2, 1971.
171. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Plan for concerted action against drug abuse*. Part 1. United Nations document E/CN.7/538, July 27, 1971.
172. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Single convention on narcotic drugs*. March 1961.
173. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Suggestions for short-term and long-term measures against drug abuse and illicit trafficking*. United Nations document E/CN. 7/530, July 28, 1970.
174. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Summary of annual reports of governments relating to opium and other narcotic drugs (1968)*. United Nations document E/NR.168/Summary, July 6, 1970.
175. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Summary of drugs seized or involved in the illicit traffic during 1969*. United Nations document E/IT/1969/85, February 22, 1971.
176. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Summary of reports on illicit transactions and seizures received by the Secretary-General from January 1 to April 30, 1970*. United Nations document E/NS, 1970/Summary 1, July 26, 1970.
177. United Press International. Largest heroin cache seized. *Gazette* (Montreal), March 3, 1972: 4.
178. United Press International. Saigon orders death penalty for drug sellers. *Gazette* (Montreal), August 14, 1972: 39.
179. U.S. News and World Report. Booming traffic in drugs: The government's dilemma. *U.S. News and World Report*, 1970, 69: 40-44.
180. United States, Bureau of Narcotics and Dangerous Drugs. Drug traffic in South America. Unpublished manuscript, Washington, D. C., n.d.
181. United States, Bureau of Narcotics and Dangerous Drugs. The world opium situation. Unpublished manuscript, Washington, D.C., October 1970.
182. United States, Cabinet Committee on International Narcotics Control. *World opium survey—1972*. Washington, D.C., July 1972.
183. United States, Department of Defense. *United States-Vietnam relations, 1945-1967*. (The Pentagon Papers). Washington, D. C.: U. S. Government Printing Office, 1971. (12 volumes).

184. United States, Department of State. *Cooperation in combating illicit international traffic in narcotics and other dangerous drugs: Memorandum of understanding between the United States of America and Thailand*. Washington, D.C.: U. S. Government Printing Office, 1971.
185. United States, Department of State, Embassy of the United States. International narcotics control summary. Press release, Ottawa, December 28, 1971.
186. United States, Ninety-first Congress, House of Representatives, Special Subcommittee on Alleged Drug Abuse in the Armed Services. *Alleged drug abuse in the armed services*. Washington, D.C.: U. S. Government Printing Office, 1971.
187. Wade, N. Heroin: Role of technology in curtailing supply. *Science*, 1972, 177: 1083-85.
188. Warner, D. A. *The last Confucian*. New York: Macmillan, 1963.
189. Washington Star Service. Laos takes steps to curb opium trade. *Globe and Mail* (Toronto), November 18, 1971: 11.
190. Washington Star Service. U. S. pressing for the extradition of alleged smuggling mastermind. *Globe and Mail* (Toronto), January 7, 1972: 8.
191. Welles, B. House member charges narcotics smuggling inquiry touches 'highest levels' of Panama government. *New York Times*, March 16, 1972: 14.
192. Wighton, C. *Dope international*. London: Frederick Muller, 1960.
193. Wise, D., & Ross, T. B. *The invisible government*. New York: Random House, 1964.

B.3 AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

1. Associated Press. 'Speed' haul said largest yet by U.S. customs. *Gazette* (Montreal), September 21, 1971: 41.
2. Broomfield, H. Halifax report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
3. Caldwell, E. Maker sent drugs to dummy outfit. *New York Times*, October 26, 1969.
4. Canada, Department of National Health and Welfare. New amphetamine regulations: Minister's statement. Press release No. 1972-206, Ottawa, December 28, 1972.
5. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Estimated consumption of schedule "G" drugs based on the deduction of exports from imports for calendar years 1962-1971 inclusive. Information communicated to the Commission, Ottawa, May 10, 1972.
6. Canada, House of Commons. Methadone and amphetamines—Statement on action to control abuse. *Commons Debates*, February 24, 1972.
7. Clement, V. R., Solursh, L. U., & Van Ast, W. Abuse of amphetamines and amphetamine-like drugs. *Psychological Reports*, 1970, 26: 343-354.
8. Drugs and Drug Abuse Education Newsletter. Amphetamine production cut 80%. *Drugs and Drug Abuse Education Newsletter*, February 1972, 3(2): 5.
9. Durrin, K. A. Diversion as a factor in illicit drug traffic. *Drug and Cosmetic Industry*, 1970, 107: 28-30.
10. Eisenberg, W. V., & Tillson, A. H. Identification of counterfeit drugs, particularly barbiturates and amphetamines by microscopic, chemical, and instrumental techniques. *Journal of Forensic Sciences*, 1966, 11: 529-551.
11. Geller, A., & Boas, M. *The drug beat*. New York: McGraw-Hill, 1969.
12. Globe and Mail. Largest speed seizure: Police believe drug ring broken. *Globe and Mail* (Toronto), January 19, 1973: 5.

13. Green, M. Committed users study. Unpublished Commission research project, 1971.
14. Green, M. Interviews with selected amphetamine traffickers. Unpublished Commission research project, 1970.
15. Green, T. *The smugglers: An investigation into the world of the contemporary smuggler*. New York: Walker, 1969.
16. Grinspoon, L., & Hedblom, P. Amphetamines reconsidered. *Saturday Review of Science*, July 8, 1972: 33-46.
17. Gunn, J. W., Jr., Johnson, D. W., & Butler, W. P. Clandestine drug laboratories. *Journal of Forensic Sciences*, 1970, 15: 51-64.
18. Hammond, R. C. Drug abuse in Canada. *Applied Therapeutics*, 1970, 12(9): 7-10.
19. Harper, J. D. (Director of Public Relations, Pharmaceutical Manufacturers Association of Canada) Letter to the Commission, June 18, 1971.
20. Harper, J. D. (Director of Public Relations, Pharmaceutical Manufacturers Association of Canada) Letter to the Commission, August 12, 1971.
21. Harper, J. D. (Director of Public Relations, Pharmaceutical Manufacturers Association of Canada) Letter to the Commission, October 12, 1971.
22. Harper, J. D. (Director of Public Relations, Pharmaceutical Manufacturers Association of Canada) Letter to the Commission, October 10, 1972.
23. Hider, C. L. Preparation of evidence in illicit amphetamine manufacturing prosecutions. *Journal of the Forensic Science Society*, 1969, 9: 75-79.
24. Kreig, M. *Black market medicine*. Englewood Cliffs, N.J.: Prentice-Hall, 1967.
25. Loving, R., Jr. Putting some limits on "speed". *Fortune*, March, 1971: 99, 127-128.
26. Marchuk, E. Montreal report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
27. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission, June 9, 1971.
28. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission, February 10, 1972.
29. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission, June 25, 1972.
30. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission, November 9, 1972.
31. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission, January 8, 1973.
32. Murphy, C. Halifax report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
33. New York Times. Big pep pill profits of doctors related. *New York Times*, January 31, 1968.
34. New York Times. Pep pills bought by carton in test. *New York Times*, September 3, 1964.
35. O'Neill, M. Monitoring study field reports: Toronto. Unpublished Commission research project, 1971.
36. O'Neill, M. The occupation of speed dealing. Unpublished student essay, Sociology Department, Bishop's University, Lennoxville, Quebec, 1971.
37. O'Neill, M. Toronto report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
38. Ottawa Citizen. Man is fined \$500 in 'diet drug' case. *Ottawa Citizen*, July 19, 1971.

39. Ouellette, K. Monitoring study field reports: Winnipeg. Unpublished Commission research project, 1971.
40. Pharmaceutical Manufacturers Association of Canada. Brief submitted to the Commission, 1970.
41. Rawlin, J. W. Street level abuse of amphetamines. In J. R. Russo (Ed.), *Amphetamine abuse*. Springfield, Ill.: C. C. Thomas, 1968. Pp. 51-65.
42. Sadusk, J. F. Nonnarcotic addictions: Size and extent of the problem. *Journal of the American Medical Association*, 1966, 196(8): 119-121.
43. Schmeck, H. M., Jr., U. S. plans 82% cutback in amphetamines. *New York Times*, February 10, 1972: 1.
44. Seevers, M. H. Abuse of barbiturates and amphetamines. *Postgraduate Medicine*, 1965, 37: 45-51.
45. Shepard, J. The cruel chemical world of speed. *Look*, March 5, 1968. 53-64.
46. Skinner, W. J. Abused prescription drugs: Sources of helpful drugs that hurt. In J. R. Wittenborn, H. Brill, J. P. Smith, & S. A. Wittenborn (Eds.), *Drugs and youth*. Springfield, Ill.: C. C. Thomas, 1969. Pp. 148-158.
47. Smith, E. Monitoring study field reports: Halifax. Unpublished Commission research project, 1971.
48. Smith, R. C. *The marketplace of speed: Compulsive methamphetamine abuse and violence*. (Doctoral dissertation, University of California, Berkeley) Ann Arbor, Mich.: University Microfilms, 1970. No. 70-12,983.
49. United Press International. Stimulant drug quotas are cut by 80 per cent. *New York Times*, February 11, 1972: 63.
50. United States, Ninety-first Congress, House of Representatives, Select Committee on Crime. *Amphetamines*. Washington, D.C.: U.S. Government Printing Office, 1971.
51. United States, Ninety-first Congress, House of Representatives, Select Committee on Crime. *Crime in America—Why 8 billion amphetamines?* Washington, D.C.: U.S. Government Printing Office, 1970.
52. United States, Ninety-first Congress, House of Representatives, Special Subcommittee on Alleged Drug Abuse in the Armed Services. *Alleged drug abuse in the armed services*. Washington, D.C.: U.S. Government Printing Office, 1971.
53. Wilson, E. V. (Assistant Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission, August 23, 1972.
54. Wilson, E. V. (Assistant Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission, with relevant tables, March 27, 1973.

B.4 COCAINE

1. Campbell, I. Information letter to Commissioners. (Visit to Office of Strategic Intelligence, Bureau of Narcotics and Dangerous Drugs, Department of Justice, Washington.) Unpublished Commission research project, 1971.
2. Campbell, I., & Solomon, R. Interviews with officials of the United States Bureau of Narcotics and Dangerous Drugs, Washington, D. C. Unpublished Commission research project, 1971.
3. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Table showing estimated consumption of the main narcotics for the period 1961-1971 inclusive. Unpublished manuscript, April, 1972.
4. Eduardo [pseud.] Talkin' to 'the Man'. Part I. *Georgia Straight* (Vancouver), September 7-14, 1972: 10 & 14.

5. Eduardo [pseud.] Talkin' to 'the Man'. Part III. *Georgia Straight* (Vancouver), September 28-October 5, 1972: 9-10.
6. Gaffney, G. H. Narcotic drugs: Their origin and routes of traffic. In J. R. Wittenborn, H. Brill, J. P. Smith, & S. A. Wittenborn (Eds.), *Drugs and youth*. Springfield, Ill.: C. C. Thomas, 1969. Pp. 55-61.
7. Gay, G. R., Inaba, D. S., Sheppard, C. W., & Newmeyer, J. A. "High, high, Miss American Pie". New debut for an old girl: Cocaine in perspective. Unpublished manuscript, Haight-Ashbury Free Medical Clinic, San Francisco, Calif., 1972.
8. Green, T. *The smugglers: An investigation into the world of the contemporary smuggler*. New York: Walker, 1969.
9. Hopkins, J. Cocaine: A flash in the pan, a pain in the nose. *Rolling Stone*, April 29, 1971: 1 & 6.
10. Kurke, M. I. (Chief, Information Development and Analysis Division, Bureau of Narcotics and Dangerous Drugs, Washington, D.C.) Letter to the Commission, October 16, 1972.
11. Long, D. Cocaine: Ain't it a shame. *Vancouver Free Press*, April 27-30, 1971.
12. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa). Letter to the Commission, June 9, 1971.
13. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa). Letter to the Commission, February 10, 1972.
14. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa). Letter to the Commission, November 9, 1972.
15. Narcotics Control Digest. Announcement of Customs Commissioner Myles J. Ambrose. *Narcotics Control Digest*, 1971, 1(9): 2.
16. New York Times. Tips from Interpol linked to seizure of 5 drug plants. *New York Times*, September 24, 1972.
17. New York Times. U. S. agents try but fail to stop flow of cocaine from Latin countries. *New York Times*, January 25, 1971.
18. O'Callaghan, S. *The drug traffic*. Belfast: W. & G. Baird, 1967.
19. Ouellette, K. Monitoring study field reports: Winnipeg. Unpublished Commission research project, 1971.
20. Perry, C. The star-spangled powder; or, through history with coke spoon and nasal spray. *Rolling Stone*, August 17, 1972: 24-26.
21. Schmeck, H. M., Jr. Cocaine is re-emerging as a major problem, while marijuana remains popular. *New York Times*, November 15, 1971: 74.
22. Tomalty, G. L. (Officer in Charge, R.C.M. Police Drug Enforcement Branch, Ottawa). Letter to the Commission, December 15, 1972.
23. Toronto Star. Raid nets \$100,000 in cocaine. *Toronto Star*, June 22, 1972: 69.
24. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Plan for concerted action against drug abuse*. Part I. United Nations document E/CN.7/538, July 27, 1971.
25. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Suggestions for short-term and long-term measures against drug abuse and illicit trafficking*. United Nations document E/CN.7/530, July 28, 1970.
26. United Nations, Economic and Social Council, Commission on Narcotic Drugs. *Summary of drugs seized or involved in the illicit traffic during 1969*. United Nations document E/IT/1969/85, February 22, 1971.
27. United States, Bureau of Narcotics and Dangerous Drugs. Cocaine and coca leaves. Unpublished manuscript, Washington, D.C., n.d.

28. United States, Bureau of Narcotics and Dangerous Drugs. Cocaine traffic. Unpublished manuscript, Washington, D.C., 1971.
29. United States, Bureau of Narcotics and Dangerous Drugs. Drug traffic in South America. Unpublished manuscript, Washington, D.C., n.d.
30. United States, Department of the Treasury, Bureau of Customs. Customs drug seizures top \$100 million. Press release, Washington, D.C., May 3, 1971.
31. United States, Department of the Treasury, Bureau of Customs. Customs drug seizures total \$617.3 million in ten months. Press release, Washington, D.C., November 19, 1971.
32. United States, Department of the Treasury, Bureau of Customs. Half-billion drug seizures by customs. Press release, Washington, D.C., July 26, 1971.
33. Volsky, G. Illicit traffic in cocaine in Miami. *New York Times*, February 1, 1970.
34. White Mountain Press. *The gourmet cokebook: A complete guide to cocaine*. New York: White Mountain Press, 1972.
35. Woodley, R. *Dealer: Portrait of a cocaine merchant*. New York: Holt, Rinehart, and Winston, 1971.
36. Woodley, R. The return of King Cocaine—Conversations with a coke peddler. *New York*, August 30, 1971: 24-29.

B.5 HALLUCINOGENS

1. Bussi res, C. Rapport de Montr al. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
2. Carey, J. T. *The college drug scene*. Englewood Cliffs, N.J.: Prentice-Hall, 1968.
3. Chayet, N. L. Social and legal aspects of LSD usage. In R. C. DeBold, & R. C. Leaf (Eds.), *LSD, man & society*. Middletown, Conn.: Wesleyan University Press, 1967. Pp. 92-124.
4. Cohen, S., & Ditman, K. S. Complications associated with lysergic acid diethylamide (LSD-25). *Journal of the American Medical Association*, 1962, 181:161-162.
5. Darrough, W. Vancouver report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
6. Dilworth, C. Pusher. Unpublished student essay, Department of Sociology, Carleton University, Ottawa, 1971.
7. Eduardo [pseud.] Talkin' to 'the Man'. Part 1. *Georgia Straight* (Vancouver), September 7-14, 1972: 10 & 14.
8. Gaussiran, M. Rapport de Montr al. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
9. Geller, A., & Boas, M. *The drug beat*. Toronto: McGraw-Hill, 1969.
10. Georgia Straight. Clear light: An interview with an LSD distributor. *Georgia Straight* (Vancouver), December 6-19, 1970: 12-13.
11. Graham, R. A. (Head, Scientific Services, Health Protection Branch, Department of National Health and Welfare, Ottawa) Letter to the Commission, October 17, 1972.
12. Graham, R. A. (Head, Scientific Services, Health Protection Branch, Department of National Health and Welfare, Ottawa) Letter to the Commission, November 20, 1972.
13. Green, M. Committed users study. Unpublished Commission research project, 1971.
14. Green, T. *The smugglers: An investigation into the world of the contemporary smuggler*. New York: Walker, 1969.

15. Gunn, J. W., Jr., Johnson, D. W., & Butler, W. P. Clandestine drug laboratories. *Journal of Forensic Sciences*, 1970, 15: 51-64.
16. Hammond, R. C. Drug abuse in Canada. *Applied Therapeutics*, 1970, 12(9): 7-10.
17. Harris, T. G. Agent in a losing battle. *Look*, 1968, 32(5): 61-64.
18. Janson, D. Doctors report a black market in drug that causes delusions. *New York Times*, July 14, 1962.
19. Karpel, C. Buyer beware. *Playboy*, September 1972.
20. Kohn, J. Midipusher. *East Village Other*, January 24, 1969: 6-7.
21. Letourneau, G., & Aubin, R. Rapport de Montréal. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
22. Lyons, R. D. A drug more potent than LSD widely distributed in California. *New York Times*, June 28, 1967.
23. Lyons, R. D. STP: The word is out on a 'megahallucinogen'. *New York Times*, July 2, 1967.
24. Marshman, J. A., & Gibbins, R. J. A note on the composition of illicit drugs. *Ontario Medical Review*, 1970, 37: 429-430.
25. Masters, J. The high school drug pusher: He's happy, personable, and rich. *Toronto Star*, April 2, 1971.
26. Mouldoux, J., & Mader, W. Observations of a drug dealership and reflections upon its communal and ideological aspects. Paper presented at C.O.D.A. International Symposium on Drug Abuse, Toronto, August 1970. (Published as Mouldoux, J. Observations sur un trafic de drogue et réflexions sur ses aspects communaux et idéologiques. *Toxicomanies*, 1971, 4: 81-97.)
27. New York Times. Chemical company fined in hallucinatory drug sale. *New York Times*, December 15, 1964.
28. Schaefer, J. Taking a look at street dope. *Georgia Straight* (Vancouver), September 10-14, 1971: 8-9.
29. Schmeck, H. M., Jr. Cocaine is re-emerging as a major problem while marijuana remains popular. *New York Times*, November 15, 1971: 74.
30. Schumach, M. Distributor of LSD recalls all supplies. *New York Times*, April 16, 1966.
31. Shaffer, R. A. Drug abuse: Where are all the pills coming from? *Medical Times*, 1971, 99: 147-156.
32. Shulgin, A. T. (Research Chemist, Berkeley, California) Letter to the Commission, February 22, 1972.
33. Smith, R. (Director, Marin Open House, San Raphael, California) Unpublished information provided to the Commission, October 1972.
34. Stoddart, K. Vancouver report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
35. United Press International. 'Biggest LSD factory' in U.S. is uncovered at farms in California. *Toronto Star*, December 3, 1971: 27.
36. Warner, E. G. Sources of hallucinogenic drugs, including marijuana: The nature and economic significance of the trade. In J. R. Wittenborn, H. Brill, J. P. Smith, & S. A. Wittenborn (Eds.), *Drugs and youth*. Springfield, Ill.: C. C. Thomas, 1969, Pp. 161-167.
37. Watts, W. D., Jr. *The psychedelic experience: A sociological study*. Beverly Hills, Calif.: Sage, 1971.
38. Whitaker, R. *Drugs & the law: The Canadian scene*. Toronto: Methuen, 1969.
39. Woolfrey, J. Winnipeg report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.

B.6 ALCOHOL

1. Allen, T. 'Juice-making' follows tradition and may top \$1,000 daily. *Winnipeg Tribune*, February 23, 1970.
2. Beaumier, J. C. Clandestine stills are a public menace. *Le Nouvelliste* (Trois-Rivières), August 16, 1963.
3. Canada, Department of the Solicitor General. *Annual report, 1969-70*. Ottawa: Information Canada, 1970.
4. Canada, Department of the Solicitor General. *Annual report, 1970-71*. Ottawa: Information Canada, 1971.
5. Canada, Department of the Solicitor General. *Annual report, 1971-72*. Ottawa: Information Canada, 1972.
6. Canada, Statistics Canada. *Breweries: 1970*. Catalogue 32-205. Ottawa: Information Canada, 1972.
7. Canada, Statistics Canada. *The control and sale of alcoholic beverages in Canada: 1970*. Catalogue 63-202. Ottawa: Information Canada, 1972.
8. Canada, Statistics Canada. *Distilleries: 1970*. Catalogue 32-206. Ottawa: Information Canada, 1972.
9. Canada, Statistics Canada. *Wineries: 1970*. Catalogue 32-207. Ottawa: Information Canada, 1972.
10. Canadian Press. Alcohol seized. *Globe and Mail* (Toronto), December 5, 1972: 4.
11. Canadian Press. 1,150 cases of liquor stolen in Montreal hijacking. *Toronto Star*, October 4, 1971: 34.
12. Canadian Press. Tipsy sheep: Police led to huge still in Laurentians. *Ottawa Citizen*, June 14, 1972: 85.
13. Carriere, J. R. R. (Assistant Commissioner, R.C.M. Police, Ottawa.) Letter to the Commission, June 23, 1971.
14. Croll, B. Raid by Mounties in Eastern Townships bares still. *Gazette* (Montreal), November 10, 1956.
15. Dowell, J. Time to pay. *Ottawa Journal*, March 19, 1971.
16. Foley, D. Moonshine for bootleggers. *Ottawa Citizen*, December 7, 1965.
17. Gazette. Maker of contraband alcohol draws fine; potion dangerous. *Gazette* (Montreal), January 12, 1967.
18. Gazette. Moonshine, phoney labels sought by police in bars. *Gazette* (Montreal), November 10, 1971: 3.
19. Gazette. Moonshine ring broken in Eastern Townships. *Gazette* (Montreal), November 3, 1972: 38.
20. Gazette. Police still dig for stolen booze. *Gazette* (Montreal), August 11, 1971: 3.
21. Gazette. RCMP raid still, seize 400 gallons of moonshine. *Gazette* (Montreal), October 27, 1972: 4.
22. Gazette. R.C.M.P. raids moonshine operation. *Gazette* (Montreal), October 15, 1971: 21.
23. Globe and Mail. Cass rejects one independent authority for all police. *Globe and Mail* (Toronto), March 20, 1964.
24. Globe and Mail. Police charge three over methyl alcohol. *Globe and Mail* (Toronto), April 27, 1971.
25. Globe and Mail. R.C.M.P. raid uncovers still, 2,000 ounces of moonshine. *Globe and Mail* (Toronto), May 15, 1972: 27.

B.7 Minor Tranquilizers, Barbiturates and Other Sedative-Hypnotics

26. Green, M. Field notes: Illicit alcohol distribution. Unpublished Commission research project, 1971.
27. Hughes, E. D. What doctors should know about moonshine. *Resident Physician*, November, 1967: 78-86.
28. Kilner, E. *Moonshine: Its history and folklore*. New York, Bobbs-Merrill, 1971.
29. La Presse. Vol de \$63,000 de whisky. *La Presse* (Montreal), October 20, 1971.
30. Le Soleil. Condamnations: Alambic et fraudes. *Le Soleil* (Québec), April 8, 1971: 7.
31. Montreal Star. Liquor still churned out 1,200 gallons a week. *Montreal Star*, July 20, 1972: A-2.
32. Montreal Star. Police seize moonshine, arrest women. *Montreal Star*, November 23, 1972: A-3.
33. Montreal Star. Police warn against buying cut-rate booze. *Montreal Star*, December 17, 1971.
34. Mowat, F. *The boat who wouldn't float*. Toronto: McClelland and Stewart, 1969.
35. Noel, A. Huge moonshine cache seized. *Gazette* (Montreal), December 22, 1971.
36. Ottawa Citizen. Cabbie, dispatcher fined for bootlegging. *Ottawa Citizen*, November 29, 1972: 3.
37. Ottawa Citizen. R.C.M.P. seizes big still in Quebec farm raid. *Ottawa Citizen*, December 20, 1972: 1.
38. Ottawa Journal. Costs government millions. *Ottawa Journal*, September 4, 1969.
39. Palmer, A. R.C.M.P. fearful lye in moonshine. *Gazette* (Montreal), October 24, 1963.
40. Palmisano, P., Sneed, R., & Cassady, G. Untaxed whiskey and fetal lead exposure. *Journal of Pediatrics*, 1969, 75: 869-872.
41. Perry, W. F. G. (Chief Prevention Officer, R.C.M. Police, Ottawa.) Letter to the Commission, November 17, 1971.
42. R.C.M.P. Gazette. Illicitly distilled spirits. *R.C.M.P. Gazette*, September, 1970: 13-18.
43. Wilde, O. T. On the steam run to Saint Peters. *Time*, September 20, 1971: 10-11.
44. Zolty, A. La police retrouve à Laval des caisses de scotch volées dans le port de Montréal. *La Presse* (Montreal), October 15, 1971.

B.7 MINOR TRANQUILIZERS, BARBITURATES AND OTHER SEDATIVE-HYPNOTICS

1. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Estimated consumption schedule "G" drugs based on the deduction of exports from imports for calendar years 1962-1970 inclusive: Barbituric acid and its salts and derivatives. Unpublished manuscript, Ottawa, March 10, 1971.
2. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Estimated consumption schedule "G" drugs based on the deduction of exports from imports for calendar years 1962-1971 inclusive. Unpublished manuscript, Ottawa, May 10, 1972.
3. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Estimated consumption schedule "G" drugs based on the deduction of exports from imports for calendar years 1970-1971 inclusive: Barbituric acid and its salts and derivatives. Unpublished manuscript, Ottawa, August 23, 1972.

4. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Number of thefts involving specific controlled drugs during 1972, n.d.
5. Canada, Department of National Health and Welfare, Bureau of Dangerous Drugs. Reported thefts of controlled drugs during the calendar year 1971. Unpublished manuscript, Ottawa, n.d.
6. Canadian Medical Association. National prescribing habits survey. Unpublished manuscript, Ottawa, 1971.
7. Canadian Medical Association, Non-medical Use of Drugs Sub-Committee. Report to C.M.A. Board of Directors re final brief to the Commission of Inquiry into the Non-Medical Use of Drugs. Unpublished manuscript. Ottawa, 1971.
8. Cumberlidge, M. C. The abuse of barbiturates by heroin addicts. *Canadian Medical Association Journal*, 1968, 98: 1045-1049.
9. Curran, R. E. Canada and controlled drugs. *Medical Services Journal*, 1962, 78: 415-430.
10. Durrin, K. A. Diversion as a factor in illicit drug traffic. *Drug and Cosmetic Industry*, 1970, 107: 28-30, 126-127.
11. Franklin, B. A. Traffic in 'pep pills' and 'goofballs' is linked to underworld. *New York Times*, February 1, 1965.
12. Green, M. Committed users study. Unpublished Commission research project, 1971.
13. Green, M., & Blackwell, J. C. Final monitoring project. Unpublished Commission research paper, 1972.
14. Harper, J. D. (Director of Public Relations, Pharmaceutical Manufacturers Association of Canada). Letter to the Commission, September 23, 1970.
15. Harper, J. D. (Director of Public Relations, Pharmaceutical Manufacturers Association of Canada). Letter to the Commission, December 3, 1971.
16. Kreig, M. *Black market medicine*. Englewood Cliffs, N.J.: Prentice-Hall, 1967.
17. La Presse. La police de Laval retrouve des barbituriques volés dans le port. *La Presse* (Montreal), October 18, 1972: 12.
18. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa). Letter to the Commission, January 12, 1972.
19. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa). Letter to the Commission, November 9, 1972.
20. McKim, T. R. (Director Bureau of Dangerous Drugs, Ottawa). Letter to the Commission, January 8, 1973.
21. Mellinger, G. D. The psychotherapeutic drug scene in San Francisco. In P. H. Blachly (Ed.), *Drug abuse: Data and debate*. Springfield, Ill.: C. C. Thomas, 1970. Pp. 226-240.
22. Murphy, C. Halifax report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
23. Nebbs, S. Bail granted in drugs case despite Crown's opposition. *Montreal Star*, October 20, 1972.
24. O'Neill, M. Monitoring study field reports: Toronto. Unpublished Commission research project, 1971.
25. Skinner, W. J. Abused prescription drugs: Sources of helpful drugs that hurt. In J. R. Wittenborn, H. Brill, J. P. Smith, & S. A. Wittenborn (Eds.), *Drugs and youth*. Springfield, Ill.: C. C. Thomas, 1969. Pp. 148-158.
26. Thompson, P. Prescribing practices. Unpublished Commission research project, 1971.
27. U.S. News and World Report. Booming traffic in drugs: The government's dilemma. *U.S. News and World Report*, December 27, 1970: 40-44.

28. Wilson, E. V. (Assistant Director, Bureau of Dangerous Drugs, Ottawa). Letter to the Commission, August 23, 1972.
29. Woolfrey, J. Winnipeg report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.

B.8 VOLATILE SUBSTANCES: SOLVENT AND GASES

1. Brown, F. The Hazardous Products Act (1969): Legal status, method of enforcement, and apparent effectiveness. Unpublished Commission research project, 1972.
2. Brozovsky, M., & Winkler, E. G. Glue sniffing in children and adolescents. *New York State Journal of Medicine*, 1965, 65: 1984-1989.
3. Chapman, R. A. (Director General, Food and Drug Directorate, Ottawa). Letter to the Commission, May 10, 1971.
4. Glaser, H. H., Massengale, O. N., & Denver, M. D. Glue sniffing in children. *Journal of the American Medical Association*, 1962, 181(4): 90-93.
5. Green, M. Committed users study. Unpublished Commission research project, 1971.
6. Green, M., & Blackwell, J. C. Final monitoring project. Unpublished Commission research paper, 1972.
7. Gregg, M. A note on solvent sniffing in Toronto. *Addictions*, 1971, 18(4): 39-44.
8. Wallace, P. It's in the bag, baby: Glue sniffing among juvenile delinquents as reported by the users themselves. Paper presented at the Conference of the Continuing Institute on Non-Narcotic Drug Abuse, Southern Illinois University, May 15-20, 1967.
9. Woolfrey, J. Winnipeg report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.

B.9 TOBACCO

1. *Tobacco Restraint Act*, R.S.C. 1970, c. T-9.
2. Canada, Department of Agriculture. Statistics on Canadian tobacco. *The Lighter*, 1971, 41(1): 26-27.
3. Canada, Department of National Health and Welfare. Trends in cigarette consumption, Canada 1920-1970. Unpublished manuscript, Canadian Smoking and Health Program, Ottawa, 1970.
4. Canada, Department of the Solicitor General. *Annual report, 1969-70*. Ottawa: Information Canada, 1970.
5. Canada, Department of the Solicitor General. *Annual report, 1970-71*. Ottawa: Information Canada, 1971.
6. Canada, Department of the Solicitor General. *Annual report, 1971-72*. Ottawa: Information Canada, 1972.
7. Canada, Dominion Bureau of Statistics. *Juvenile delinquents, 1968*. Ottawa: Queen's Printer, 1970.
8. Canada, House of Commons. *Report of the Standing Committee on Health, Welfare and Social Affairs on tobacco and cigarette smoking*. Ottawa: Queen's Printer, 1969.
9. Canada, Statistics Canada. *Exports by commodities: December 1971*. Ottawa: Information Canada, 1972.

10. Canada, Statistics Canada. *Tobacco and tobacco products statistics quarterly: March 1972*. Ottawa: Information Canada, 1972.
11. Canadian Press. Cigarette thieves bore through concrete wall. *Montreal Star*, November 22, 1971.
12. Canadian Tobacco Manufacturers Council. Cigarette advertising code of the Canadian Tobacco Manufacturers Council. Unpublished manuscript, n.p., 1972.
13. Charlton, L. Bootleg cigarettes: A hot business. *Chronicle-Herald* (Halifax), May 18, 1971.
14. Colburn, H. N. (Director, Use of Tobacco Program, Department of National Health and Welfare) Unpublished information provided to the Commission, February and March, 1973.
15. Imperial Tobacco Products Limited, Public Relations Department. 1971: Review of the Canadian tobacco industry—The industry at a glance. Unpublished manuscript, Montreal, 1972.
16. Imperial Tobacco Products Limited, Public Relations Department. 1971: Review of the Canadian tobacco industry—Production of leaf tobacco grown in Canada. Unpublished manuscript, Montreal, 1972.
17. Ottawa City Police. *Annual report 1969*. Ottawa, 1969.
18. Toronto Star. 3 held after truck picks up cigarettes. *Toronto Star*. November 1, 1971: 44.
19. Wilde, O. J. On the steam run to Saint Peters. *Time*, September 20, 1971: 10-11.

Extent and Patterns of Drug Use

C.1 INTRODUCTION

Despite an enormous amount of research on the extent and patterns of drug use in the last few years, a number of considerable difficulties still remain in providing information on this subject. Some of these difficulties are conceptual, some arise from the types of populations studied by researchers, and some have to do with temporal changes in the phenomenon of drug use itself. Various populations are not equally amenable to social scientific investigation, and we realize that drug use patterns in certain groups (for example, among most institutionalized persons) remain invisible. In this section we set out these and other methodological difficulties and indicate the rationale of our approach to the extent and patterns of non-medical drug use. Tentative estimates of the number of current non-medical drug users in Canada, and their social characteristics, are provided in the second and third parts of this appendix, C.2 *Extent of Use* and C.3 *Characteristics of Users*. The fourth section, C.4 *Patterns of Use* is devoted to a description of Canadian drug use patterns.

Information on any subject to do with human behaviour always derives from a delimited group of people. Such a group is called a 'population' by social scientists. Everyone 18 years of age and over and living in Toronto in the spring of 1973 constitutes a population, and all university students in Canada in the spring of 1973 constitute another population, one that happens to overlap slightly with the first. By whatever method information is collected, from whatever type or size of 'sample', the information can, with any certainty, represent only the situation in the population from which it was obtained. Uncertainty necessarily enters when the information is projected to other populations. Research in the drug field has concentrated disproportionately on particular populations, reflecting temporal changes in public concern. In the post-war United States, when heroin use was the principal concern, lower-class people of specific ethnic minority groups were the main populations studied. Later, when cannabis and hallucinogen use began to

spread, first university students and then high school students became the populations of most interest to researchers, partly because they were seen as especially 'at risk' to drug use, and partly because they were easily accessible. This tendency to study drug use in special populations creates problems of comparability from study to study, and of generalizability to larger populations. It has undoubtedly made the drug use patterns of these special populations seem more exotic than they would appear in the context of the drug use patterns of our society as a whole.

Our primary concern is non-medical drug use. But what do we mean by 'drug use' and what constitutes 'non-medical' use? Many different answers to these questions are possible, and many can be found in the studies that we depend on for data on extent and patterns of use. How drug use is defined depends on the particular problem under study, and this leads to various definitions and, consequently, a certain degree of confusion. For our purposes, however, we refer the reader to the *Interim Report* in which the non-medical use of drugs is defined as "*all drug use which is not indicated on generally accepted medical grounds. . . .*"

Many studies attempt to say something about the 'drug culture', and hence focus on the use of illegal drugs: cannabis, 'speed', and the hallucinogens, for example. If the study is of a high school population, then for most of its subjects alcohol will also be an illegal drug. However, alcohol has frequently been omitted from past consideration since researchers have not ordinarily associated it with the drug culture. Fortunately this situation is changing, as indicated by the inclusion of alcohol-related questions in many recent Canadian surveys.

Some studies are directed at adult use of pharmaceutical substances in order to evaluate the degree to which this use accords with medical norms. Here alcohol, tobacco, and illegal drugs are typically ignored. Studies of tobacco use generally define that use in terms relevant to a concern with the increased risk of disease, and studies of alcohol use tend to reflect a concern with the development of alcoholism, and thus to remove each from a broader consideration of the patterns and context of drug use. Many researchers have failed to examine the larger context within which the use of certain substances occurs and have displayed stereotyped thinking regarding both particular drugs and the populations to which they are presumed to be relevant.

In studies of the use of illegal drugs, use is typically regarded as being *ipso facto* non-medical use, and is therefore artificially isolated from all other current patterns of drug use. This assumption may disguise illuminating parallels between the use of these illegal drugs and the use of legal psychotropic substances employed for medical purposes. The opinion of the user himself as to the function of his drug use (be it medical or non-medical) is subjective, but it may be a relevant definition for certain purposes such as understanding those factors which motivate some persons to use drugs on an initial or continuing basis.

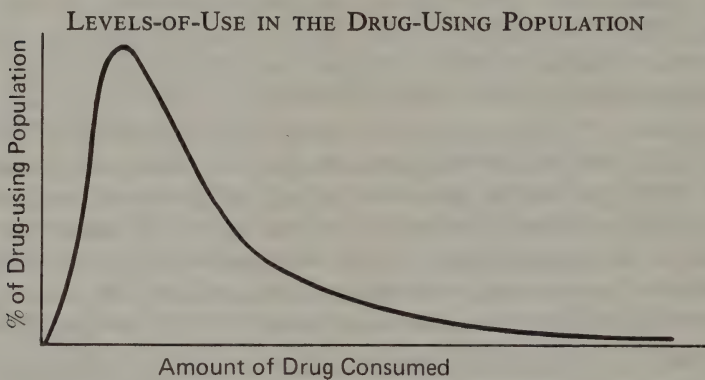
In discussing measurements of extent of use, we have made no judgment, in the first instance, as to the medical or non-medical purpose of the use. We thus have a maximum figure for the extent of use of the substance in question. We then qualify the maximum figure with estimates of non-medical use. In some cases these estimates are quantitative; in others they can only be in qualitative terms. Wherever possible we point out subcategories of users of a drug in terms of recreational, functional or medical use of the substance (see C.4 *Patterns of Use*, page 707), in terms of the level-of-use of the substance, and in terms of the short-term or chronic character of use. We know that these subcategories of users are smaller than the totality of users, but in most cases there are no data available that enable us to determine their size exactly.

By 'extent of use' of a drug we mean how widespread its use is in a population. Since the studies on which this appendix is based do not use a single precise definition of extent of use, we are in no position to do so either. The term becomes more precise when 'level-of-use' is defined, and a period of time is specified. We may then be able to say what proportion of Canadians have used, for example, barbiturates at least once a month in a period of a year. Or we may define the phenomenon much more broadly, and ask what proportion of Canadians have used barbiturates in their life time. The second approach to determining extent of use will undoubtedly yield a different phenomenon in terms of the social characteristics of users and of the patterns of barbiturate use, and of drug use more generally, than the first definition.

The want of sophistication that still plagues studies of non-medical drug use shows up most obviously in the treatment of levels-of-use. By 'levels-of-use' we mean the frequency and regularity (and, in some cases, dose levels) with which individual users consume a particular drug, or the total number of times that they have used it. A minimum level-of-use must be specified in order to define a user. We may ask how many people have ever used a particular substance, even once. This is the simplest measure of drug use in a population, and for most purposes the least useful since the levels-of-use, and whether the use is current or took place in the more or less distant past, are not known. In some studies the measure is sharpened to include only those who have used the substance at least once in a fixed period of time (for example, in the last six months), but this still leaves room for a wide variation in levels-of-use. Despite these problems, 'ever used' and 'any use in the last six months' remain the most commonly employed operational definitions of drug use. The matter becomes more complicated when we consider that it has become typical of studies of non-medical drug use to survey the use of a range of substances, and to define that use in terms of the same levels-of-use definitions for all drugs. However, the relevance of a level-of-use definition depends on the particular substance: cannabis used once a month would probably not be considered heavy use, but LSD used once a month might well be.

The distribution of levels-of-drug-use in a population at a given point in time has received increasing attention in recent years. The majority of the relevant studies have focussed on per capita alcohol consumption, although there is also more limited evidence that similar distributions of use occur with a variety of other psychotropic drugs as well. It would appear from available data that levels-of-use of a drug in the user population may be distributed in a way which can be described by a continuous smooth curve, in some circumstances approximately a log-normal distribution (see Figure C.1). Although the exact mathematical specifications of the distribution are not essential here, its general form can provide significant information.^{74, 130, 200, 218, 244}

FIGURE C.1



Within this distribution, the majority of those who use a drug use relatively little, and as the amount used is increased, the number of individuals involved at these levels decreases, at first rapidly and then more slowly, but without any break that would differentiate various levels-of-use. Available data suggest that extreme use is on a continuum with light and moderate consumption, and that discrete levels-of-use categories do not exist as such. The unimodal shape (i.e., having only one peak or 'mode') of this distribution may be of considerable importance. If, for example, users of a particular substance became 'fixed' at a given level of consumption, we would expect some clustering at such a level which would be indicated by a bimodal distribution curve (i.e., having two peaks or 'modes') rather than a unimodal one. No evidence of such a subpopulation, defined only by levels-of-use, has been indicated by the available data.

For practical purposes of analysis, however, discrete and necessarily arbitrary divisions on the levels-of-use continuum are made in much of the following discussion.

In this appendix level-of-use is employed as an indicator of an individual's stage in a social process, the process of becoming a user of a drug, his use governed by the norms of the using culture. The examination of this social process or 'career' of drug use can be viewed as the study of how

an individual changes his position in the per capita consumption distribution over time (which is a within-subject analysis over time, as opposed to a between-subject analysis at a given point in time).⁵¹ This social process by which an individual becomes a user of a particular substance suggests that the first conceptual distinctions in levels-of-use are between non-users and 'experimental' users, and between experimental users and all more experienced users. These more experienced users can then be subdivided into 'occasional' and 'regular' level-of-use categories. Experimental use, occasional use and regular use are defined more concretely in *C.4 Patterns of Use*, where regular users are further examined in terms of the moderate or heavy character of their use.

Differences in levels-of-use of a drug may be an indicator of different drug-using subcultures. When that is the case, the differences in level-of-use are usually accompanied by a number of other differences in style of use. If the definition of use of a substance does not in some way take into account these differences in style of use, then disparate phenomena may be analysed together as if they were the same. 'Speed freaks', for example, use amphetamines, but are not typical of amphetamine users as regards level-of-use, dosage patterns, mode of consumption, or subcultural values. If a study fails to recognize these distinctions and still goes on to examine the social correlates of drug use, the results will be misleading. When the extent and patterns of use of a drug are examined, information on the style of use as well as the level and duration of use of that drug must be available. It is only with such information that there is any hope of elucidating the social context of use, and of evaluating the physiological and psychological consequences of varying consumption patterns.

There are various approaches to, and sources of, information on the extent and patterns of non-medical drug use, differing in reliability, validity and generalizability. The first and most common approach to drug use data is surveys and, under certain circumstances, surveys based on random samples provide the most valid extent of use information for a population. However, if the number of users in the total population is very small, or if they are geographically "clustered" (i.e., live close together in specific areas) or frequently institutionalized (hospitalized or imprisoned), then the size of the sample that would yield valid estimates of numbers of users may be impractically large. Thus, most surveys may yield valid data on alcohol use, but not on cocaine or heroin use because of the relatively small number of users of such drugs in the general population. Additionally, the legal status of a drug or the relative stigma associated with its use may affect the likelihood of accurate responses and, thus, the overall validity of drug survey findings.

The quality of social research in the Canadian drug field has risen considerably in the past few years. In the spring of 1971 the Addiction Research Foundation of Ontario conducted the first random sample survey, apart from samples drawn for the Commission, of a general population of

adults, and a broad range of drug use patterns was examined.^{82, 239} It is to be hoped that this represents the beginning of a trend to less specialized samples, a broader definition of the phenomenon under scrutiny, and a more profound analysis of the relationships that are found. The unsophisticated polling of correlates of drug use that characterized many studies in the past yielded prevalence of use rates which have some value but which now need to be carefully interpreted. A much more sophisticated approach is presently required. Specifically researchers must be more analytical and precise in the questions they ask when investigating the phenomenon of non-medical drug use, and they must be prepared to conduct open-ended and extensive interviews and, if necessary, apply ethnographic techniques to ensure sociologically meaningful measures of the phenomenon. The time for exploratory surveys is past.

If the use of a substance is known to be concentrated within a particular subculture or relatively small geographical area, then anthropological techniques, of a qualitative sort, may be the most effective means of determining extent and patterns of use. There are two difficulties in using this second approach to drug use data to describe the situation in the general population. First of all, the assumption cannot usually be made that use is concentrated in a subculture. Subcultural trappings may make certain kinds of drug use more visible and lead the observer to the conclusion that that sort of drug use is always found in association with those trappings: for example, assuming that all hallucinogen users affect long hair, beads and dishevelled dress. The use of a substance may, however, be mediated by more general social norms, and in that case the use is liable to be less visible, but still definitely present. A second difficulty is that anthropological studies provide no basis for predicting the consequences of an increase in the extent of use of a drug. If the extent of use of a drug increases because the particular beliefs and practices that define the subculture are spreading, then no problem arises. However, it is possible that the extent of use is increasing because the use of the drug has expanded beyond the boundaries of the subculture. In this case, many of the concomitants of use will drop away, having been the consequence not of the substance itself, but of the subculture. This appears to be the case with cannabis, which has now escaped the boundaries of the 'hippie' subculture and has consequently shed these subcultural trappings. As a result, the social characteristics of cannabis users have changed, relegating the early studies of communities of cannabis users to a position of a largely historical interest.

Drug use may also be measured indirectly through such data as illicit drug analyses, licit drug sales, psychiatric or medical epidemiology (for example, liver cirrhosis and adverse reaction statistics), arrest statistics, or police seizures. This third source of drug use information was the usual mode of determining extent of use before drug-related surveys became popular in the mid-1960s. Some of these measures are highly sophisticated (in particular those used to estimate numbers of alcoholics and heroin de-

pendents), but they are often a source of interpretive disagreement. The ultimate origin of such information is commonly the tabulations of the consequences of the activities of such groups as police and hospital officials. These data are therefore susceptible to changes resulting from policy alterations within the agencies that generate them. Furthermore, any such measures depend on an explicit or implicit function or relationship linking it to the extent of drug use that it is to measure. If the true extent of drug use changes, the function may also change, and this is a second reason why such measures may yield false conclusions.

The Commission has made use of all three of these sources of information: surveys, more qualitative anthropological approaches, and indirect measures.

The York University Survey Research Centre, in collaboration with Le Centre de Sondage de l'Université de Montréal, conducted national surveys for the Commission on drug use of the population of Canada 12 years of age and over in the spring of 1970. These surveys (the only methodologically rigorous general national surveys to date) were intended to measure the extent of drug use, including individual drug use histories, attitudes toward and knowledge of drugs, and attitudes toward and knowledge of the law, together with a number of social and social-psychological variables.^{142, 143, 144}

There were three national Commission surveys: one of high school students, one of college and university students (including both undergraduates and graduates), and one of a group that is most conveniently called 'adults' and that was defined as everyone over the age of 12 who was not attending a primary or secondary school.

The adult and high school surveys were based on multi-stage samples: the first stage was geographical areas, with far northern areas being excluded. Households were listed within sampled areas, and randomly sampled in turn. Since households formed the sampling frame, or units of analysis, at this stage, people in prisons, hospitals, old people's homes, on Indian reserves and in institutional dormitories were excluded. The high school sampling frame included all students in grades 7 to 12 or 13 who were over the age of 11 and living in the sampled households. The adult frame included everyone else over the age of 11. The sample of university students was randomly selected from registrars' lists from universities and colleges selected in a purposive sample to represent all Canadian colleges and universities. Each survey used a different method of data collection: the adult survey used an interview, the high school survey used a questionnaire distributed by the interviewer to all eligible children in the household and completed by them in private, and the college and university survey used a mailed questionnaire. The adult survey yielded 2,749 usable interview schedules, while the high school and college and university surveys each yielded 1,213 respondents. The response rate for the adult survey was 79 per cent, and for the college and university survey, 73 per cent. Since the high school survey was dependent on the

national adult sample, it is not possible to present a meaningful response rate for this population.

The Commission also conducted a special survey of adult drug users in five Canadian cities,¹⁰⁶ and a smaller study of regular cannabis users to quantitatively determine their drug consumption patterns.¹⁰⁵ In addition, the Commission made use of many published and unpublished survey studies of various populations in Canada and other countries, as well as extensively reviewing the social scientific literature related to extent and patterns of drug use. The Commission also conducted participant-observation studies in several 'street-level' drug-using communities in 1970,¹⁰³ and regularly monitored drug use patterns in several of these communities for over two years. Recently, Commission observers returned to a variety of cities across Canada to further question knowledgeable persons on changes in patterns of drug use since 1970.¹⁰⁴

The Commission attempted to evaluate the extent of certain drug-related deaths in Canada between 1969 and 1972.¹⁷³ Besides these special analyses of national data on drug deaths supplied by Statistics Canada, the Commission surveyed coroners in each province requesting coroners' reports and related documents pertaining to the drugs of primary interest. The Commission also surveyed all psychiatric hospitals in Canada in April 1971 to determine the extent to which certain drugs, including alcohol, were mentioned in the diagnoses of hospitalized patients.¹¹⁶ In addition, special analyses were done of national mental health data provided by Statistics Canada. The results of these studies are discussed elsewhere in this report (see Appendix A *The Drugs and Their Effects*).

The Commission has had access to the annual tabulations of numbers of 'known habitual illicit narcotic drug users' compiled by the Bureau of Dangerous Drugs of the Health Protection Branch, Department of National Health and Welfare (some of these tabulations for 1972 are presented in Annex 2 of this appendix), as well as many studies measuring numbers of addicts and alcoholics in several jurisdictions using various indirect indicators. In addition, R.C.M. Police estimates of Canada's addict population were available to the Commission.

In this appendix we primarily make use of a particular model to explain human behaviour, that which interprets human conduct as social conduct governed by definitions and evaluations learned from other persons. The individual and his drug use are linked within a social context by definitions, practices and values, in other words, by the elements of a culture. If there are different patterns of drug use within a society, these are mediated by different cultures. By culture, we mean merely a body of tools, definitions, norms and values bearing upon some ongoing human activity. Thus there can be cultures within cultures. Those cultural elements which are common to a whole society make up the core of any individual's culture. However, if cultural elements which cover sufficient of the tasks of social life as to mark an individual off from others are shared among a small proportion of the population, they

constitute a subculture. For certain purposes society can be seen as a mosaic of subcultures. We are concerned with subcultures only insofar as they display distinct subcultural patterns of drug use.

If the use of a drug spreads from one subculture to another, it will not necessarily take its cultural baggage with it. Therefore, the social concomitants of use may change. The more widespread use becomes, the more the social characteristics of users will approach those of the general population, if they were not the same to begin with. This process, as has been previously noted, is strikingly illustrated by the case of cannabis.

We must make use of past information to arrive at a description of the present, and therefore must project the past into the present in some way. There are so few observations on drug use in the same population over time in Canada (or, in fact, in any other country) that formal statistical techniques of extrapolation or projection are not useful. However, certain assumptions about the social context within which the diffusion of drug use occurs, and about social processes more generally, allow us to make descriptive statements that reflect all of the available data and the consensus of opinion on the subject in the social sciences. These assumptions are more specifically delineated in the following section.

No society ever stands still. However, we can imagine a society in which all social forces are in equilibrium, in which no social change is taking place. Each drug would then presumably be consumed by a constant proportion of the population, and the various patterns of use of each drug would be relatively fixed. All drug use would then be at a plateau. If there is a change, and the social forces move to a new equilibrium, then the extent and patterns of use of each drug would probably change and move to a new plateau, there to remain until another shift in social forces takes place. This is not the only way of conceiving of social processes, but it is a useful way of thinking about significant changes in the extent and patterns of drug use. Estimating changes in extent and patterns of drug use in the society as a whole thus becomes a process of estimating the plateaux of use in the various subcultures of a society, and determining the culturally conditioned style of use for each subculture. The results of this method of analysis follow.

C.2 EXTENT OF USE

From the point of view of the individual consumer, the non-medical use of any given drug occurs within a context of multiple drug use, including both the medical and non-medical use of drugs, and the use of substances that an individual may not regard as drugs, such as alcohol, tobacco or coffee. In this section we examine the extent of use of individual drugs and, in the next section, present summary data on the social characteristics of Canadian drug users. Finally, we discuss patterns of drug use and the multi-drug use context. This latter discussion is complemented by Annex 1 to this appendix

in which quantitative data on the relationships between various drugs is analytically reviewed.

Research during the last four years has produced a respectable volume of data on the extent of drug use but these studies describe a patch-work quilt of populations. Certain groups, particularly adults and people in rural areas, are still largely ignored by drug researchers. Because of this fragmentation of the data, formal methods of extrapolating the extent of drug use in Canada are not appropriate. The "estimates" that follow are sound impressions rather than firm estimates, but we feel that they give the best sense of the available information, and that they are near enough to the present reality of drug use in Canada to be useful.

OPIATE NARCOTICS

'Opiate narcotics' or 'opiates' in this context will refer to opium and its natural alkaloids and related synthetic compounds, including heroin and methadone. (See Appendix A.2 *Opiate Narcotics and Their Effects*.)

Many of those in drug-using circles who state that they have used 'opiates' are probably referring to opium preparations other than heroin including, in some cases, codeine-containing pills or cough syrups. They may also be referring, incorrectly, to 'opiated' hashish, an apparently mythical substance, the existence of which has never been documented in Canadian street-drugs analysis programs. With regard to patterns of use, opium is occasionally used, when available, in a manner similar to cannabis smoking. Heroin, on the other hand, suggests to youthful drug users a much more serious and dangerous drug. It is unfortunate that so many studies simply ask exclusively about 'opiates', and do not seek data that would allow us to empirically distinguish between the use of heroin and the use of other opiate narcotic drugs. Furthermore, heroin use does not necessarily imply intravenous use of the drug; experimental users, in particular, tend to use inhalation as their primary mode of consumption.

In the following pages, we will attempt to estimate the number of heroin and methadone dependent persons in Canada. Information on the extent of opiate use other than heroin or methadone is, unfortunately, scanty.

The number of "known habitual illicit narcotic drug users" (hereafter referred to as "habitual narcotics users") recorded by the Bureau of Dangerous Drugs (B.D.D.) of the Department of National Health and Welfare is shown in Table C.1. Table C.2 indicates the changes in these numbers from year to year. The number of known habitual narcotics users was relatively stable in Canada from 1962 to 1969, and showed marked increases in 1970, 1971 and 1972.

Opiate users are added to this B.D.D. list if they come to the attention of the police, or if they are prescribed methadone for the treatment of dependence. They are dropped from the list if they are not heard of in ten years. There are, therefore, two sources of error in the list. First, not all habitual

TABLE C.1

NUMBER OF HABITUAL ILLICIT NARCOTIC DRUG USERS* RECORDED BY THE
DIVISION OF NARCOTICS CONTROL, DEPARTMENT OF NATIONAL HEALTH AND WELFARE
FOR CANADA AND REGIONS, 1962 TO 1972†

Year	Atlantic	Quebec	Ontario	Prairies	B.C.	Total
1962.....	4	153	764	208	1886	3015
1963.....	8	148	753	205	1692	2806
1964.....	9	133	801	195	1649	2787
1965.....	8	137	816	179	1862	3002
1966.....	9	146	816	188	2019	3178
1967.....	9	147	829	212	2135	3332
1968.....	7	159	820	210	2259	3455
1969.....	8	178	827	269	2448	3730
1970.....	11	210	912	418	3097	4648
1971.....	27	393	1225	636	4095	6376
1972.....	51	608	1672	1044	5461‡	8836

Source: Canada, Department of National Health and Welfare, Health Protection Branch, Bureau of Dangerous Drugs, Ottawa.

* Habitual illicit narcotic drug users "include all cases where we [the Bureau of Dangerous Drugs] have record of the person [during the previous 10 years] and where the source was initially illicit. Not all of these persons have been convicted under the Narcotic Control Act." Prior to 1972, the Bureau of Dangerous Drugs referred to these persons in their annual tabulations as "street or criminal addicts".

† Cannabis users have been subtracted from these figures for the years 1962–1966. Cocaine users have been removed for all years.

‡ Includes one person in the Yukon.

TABLE C.2

NUMBERS OF HABITUAL ILLICIT NARCOTIC DRUG USERS* AS A PERCENTAGE OF THE
PREVIOUS YEAR'S NUMBER, FOR CANADA AND REGIONS, 1962 TO 1972

Year	Atlantic	Quebec	Ontario	Prairies	B.C.	Total
1962.....	†	103	105	100	102	103
1963.....	†	97	99	99	90	93
1964.....	†	90	106	95	98	99
1965.....	†	103	102	92	113	108
1966.....	†	107	100	105	108	106
1967.....	†	100	102	113	106	105
1968.....	†	108	99	99	106	104
1969.....	†	112	101	128	108	108
1970.....	†	118	110	155	127	125
1971.....	†	187	134	152	132	137
1972.....	†	155	137	164	133	139

Source: Canada, Department of National Health and Welfare, Health Protection Branch, Bureau of Dangerous Drugs, Ottawa.

* 'Habitual illicit narcotic drug users' as defined in Table C.1, cannabis and cocaine users removed.

† Base negligible.

narcotics users come to the attention of the police or the Bureau of Dangerous Drugs, and, of those who do, there is usually a considerable timelag between first contact with opiates and becoming 'known' to the B.D.D. Second,

not all of those on the list are necessarily dependent on opiates. A small number are users of cocaine, and a larger number, about five per cent in 1971, were cited as using 'unknown substances'. Since patterns of cocaine use differ considerably from heroin or methadone patterns, we have removed cocaine users from the B.D.D.'s habitual narcotics users figures. For similar reasons, cannabis users (who were recorded by the B.D.D. until 1966) have also been removed. Not all of those who are arrested for a heroin-related offence (particularly a possessional or importing offence) are necessarily dependent, but their names will still be added to the list. In addition, a certain proportion of those on the list will have died, left the country, or their dependence will have remitted in the decade before their names are automatically removed from the list. Thus, not all persons in the known habitual narcotics users files are necessarily dependent on opiates, and not all of those who are dependent are listed as 'known'.

Some additional comments are in order on the significance of these figures. They are used here as an indicator of the number of opiate-dependent persons in Canada. It is generally believed that these figures represent an underestimate of the total number of dependents in the country, but it is usually assumed that when the number of known habitual narcotics users rises it has done so because of an increase in the heroin-dependent population at large and, thus, may be considered to be rising more or less in proportion to this general increase. As indicators, these figures belong to the indirect type of measure discussed in C.1 *Introduction* above, and, as such, are subject to varying interpretations.

If the true number of dependent persons in Canada is a constant function of the number known to the B.D.D., we may still use these figures as an estimate of the actual number of users. However, there is reason to believe that this is no longer the case as the B.D.D. is, apparently, presently collecting some of these names through different channels than it did in the past. The so-called 'new addict' is said to be younger and, unlike traditional heroin dependents, appears for treatment (particularly methadone maintenance) after only a few months or years of use.⁵³ In the past few years, we have seen an increasing proportion of new names which have been gathered by "retail reports", that is, primarily through methadone maintenance prescriptions.¹⁷⁰ The sudden upsurge in the number of recorded habitual narcotics users in 1970, 1971 and 1972 could, then, reflect the increasing popularity of methadone maintenance as well as the tendency for young users to appear early for treatment.

Nonetheless, a growing number of new names have also been derived from police reports. If, indeed, these new names represent new, young users, it is not unreasonable to assume that many of them reflect changes in law enforcement activity during the past few years. With the rise in cannabis and hallucinogen use, law enforcement officials have become much more aware of youthful drug use, thus increasing the probability that a young person or his residence will be searched. In addition, drug squads across the country

have recently been concentrating on 'hard' drugs, shifting from their earlier focus on cannabis and LSD. Thus, it seems a greater number of opiate users are appearing on the lists of the Bureau of Dangerous Drugs, but we cannot be certain that this increase is proportional to the true increase in use of the population at large.

A study by Oki of Toronto heroin users known to the Addiction Research Foundation of Ontario, the R.C.M. Police, or the Bureau of Dangerous Drugs, indicated that 64 per cent of the combined total were known to the B.D.D.¹⁸⁶ If this proportion holds for all of Canada, there were roughly 10,000 heroin users in Canada in 1971 and 14,000 in 1972 who were likely to be known to some data-gathering agency. However, it must be remembered that heroin users are more likely to be known to treatment personnel in large urban centres like Toronto and Vancouver where treatment programs are readily available. Furthermore, this estimate excludes all those users who were not known because they had not yet come into contact with law enforcement officials or had not sought treatment.

A preliminary Commission analysis of heroin- and methadone-related deaths in Canada from 1970 to early 1972 revealed that a little over 50% of the dead had been unknown to the Bureau of Dangerous Drugs as opiate narcotic users. These data imply that the number of habitual opiate narcotics users known to the B.D.D. in 1970-71 represented only about one-half of the actual opiate-using population (which suggests an estimate of almost 13,000 such users in 1971). We do not have adequate information for 1972, but we suspect that the proportion of opiate narcotics users known to B.D.D. may have recently changed as a result of the expansion of their information acquisition network, changes in patterns of drug use and other factors.

When the Commission conducted its field studies in May 1972, it received high and low estimates from "knowledgeable persons" in major cities of Canada as to the numbers of daily users of heroin and methadone.¹⁰⁴ These estimates are highly impressionistic, even though they represent some of the best informed opinions in the cities which were surveyed. High and low estimates were made for the major regions of Canada, and the result was a low daily user estimate for the country as a whole of 7,525 and a high of 14,800. The R.C.M. Police, on the other hand, have estimated that in the fall of 1972 there were between 12,400 and 14,410 'heroin addicts' in the country, and although their regional breakdown differed somewhat from that derived from our survey of knowledgeable persons, the high totals are not significantly different.

Because of the relative 'invisibility' of occasional users, our field workers' estimates of the size of this population are even less reliable, but suggest numbers in the 15,000 to 30,000 range for the year 1972. Smart, Fejer and White²⁴² found that 4 per cent of Toronto high school students reported use of opiates in the six months prior to their 1972 survey, and that 1.9 per cent (some or all of whom may have answered the 'opiates' question affirmatively) claimed to have used heroin during the same period of time.

While there is no reason to doubt the findings of this Toronto survey, it would be unwise to project these figures to the country as a whole as Vancouver is probably the only other Canadian city with comparable heroin availability. However, based on what little is known about the relationship between opiate-dependent and non-dependent using populations, it is not unreasonable to assume that in 1972 Canada's approximately 15,000 daily heroin and methadone users were complemented by an additional 50,000 occasional users of these drugs. An unknown proportion of this latter group is, of course, at risk to dependence.

Heroin dependence has been concentrated in British Columbia for many years. Tables C.3 and C.4 indicate that the proportional rate of increase in habitual narcotics users on the lists of the Bureau of Dangerous Drugs between 1961 and 1972 is highest for the regions with the smallest proportions of known users, particularly the Atlantic region and the Prairies.

The Commission's field studies of May 1972 indicate that methadone use resulting from careless prescribing by physicians in Halifax accounted for most of the increase in opiate use in the Atlantic region.¹⁰⁴ Montreal has witnessed a similar phenomenon. There has been an increase in heroin use in Ontario, primarily in the populations traditionally associated with its use, and mainly along the Toronto-Windsor axis where there is a good deal of contact between American and Canadian drug users. In the west, British Columbia has experienced an increase in heroin use, and more particularly in occasional (and not necessarily intravenous) heroin use among young people. British Columbian heroin-using patterns tend to diffuse to Alberta, where, in the past five years, there has been a marked increase in the number of known opiate users: from 123 in 1968 to 614 in 1972.⁴⁶ The extent of heroin use in Saskatchewan and Manitoba has also increased, but not as

TABLE C.3

PERCENTAGE OF HABITUAL ILLICIT NARCOTIC DRUG USERS* BY REGION OF CANADA, 1962 TO 1972

Year	Atlantic	Quebec	Ontario	Prairies	B.C.	Total
1962.....	.1	5.1	25.3	6.9	62.6	100
1963.....	.3	5.3	26.8	7.3	60.3	100
1964.....	.3	4.8	28.7	7.0	59.2	100
1965.....	.3	4.6	27.2	6.0	62.0	100
1966.....	.3	4.6	25.7	6.0	63.5	100
1967.....	.3	4.4	25.0	6.4	64.1	100
1968.....	.2	4.6	23.7	6.1	65.4	100
1969.....	.2	4.8	22.2	7.2	65.6	100
1970.....	.2	4.5	19.6	9.0	66.6	100
1971.....	.4	6.2	19.2	10.0	64.2	100
1972.....	.6	6.9	18.9	11.8	61.8	100

Source: Canada, Department of National Health and Welfare, Health Protection Branch, Bureau of Dangerous Drugs, Ottawa.

* "Habitual illicit narcotic drug users" as defined in Table C.1, cannabis and cocaine users removed.

TABLE C.4

HABITUAL ILLICIT NARCOTIC DRUG USERS* PER HUNDRED THOUSAND POPULATION,
1961 AND 1971, AND 1971 RATE AS A PERCENTAGE OF 1961 RATE, CANADA AND REGIONS

	Atlantic	Quebec	Ontario	Prairies	B.C.	Total
Addicts per hundred thousand population						
1961.....	0.3	3.8	12.6	6.6	113.5	16.7
1971.....	1.4	6.6	16.1	18.5	187.3	29.8
1971 Rate as Percentage of 1961 Rate.....	467	174	128	280	165	179

Source: Canada, Department of National Health and Welfare, Health Protection Branch, Bureau of Dangerous Drugs, Ottawa.

* "Habitual illicit narcotic drug users" as defined in Table C.1, cannabis and cocaine users removed.

dramatically as is the case with Alberta.¹⁰⁴ Provincial patterns of heroin distribution are presented in Appendix B.2 *Sources and Distribution of Opiate Narcotics*.

There is a consensus among Canadian observers that opiate use is increasing, but no one claims to know the rate of increase. As well, no authority feels able to predict when the increase in heroin use will peak or reach a stable plateau, if ever. One United States researcher, John Newmeyer of the Haight-Ashbury Free Medical Clinic, on the basis of a survey of drug-dependent young people in San Francisco, suggests that a plateau has been reached there, and believes that use will peak throughout the United States by 1974.^{182, 183} The random samples of identifiable populations available for Canada have not permitted any broad generalizations about whether or not this possibility applies to this country as well.

AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

We are concerned here with 'pep pills', 'diet pills' and 'speed'. These are preparations of amphetamine, dextroamphetamine, or methamphetamine (the last of these being the drug of choice of 'speed freaks'), and the amphetamine-like drugs such as phenmetrazine and methylphenidate. The critical distinction for our purposes is not the particular chemical used but, rather, the dose level, frequency of use, and whether it is taken orally or intravenously. The physical, psychological and social concomitants of these different using patterns are reviewed elsewhere in this report; a discussion of the extent of both oral and intravenous types of use follows.

INTRAVENOUS SPEED USE

The intravenous use of speed (methamphetamine) is commonly associated with the 'speed freak' phenomenon, but may occur in other drug-using subcultures as well. The term 'speed freak' denotes not only the use of a

substance (speed), but also the level-of-use (chronic high-dose use) and the mode of administration (intravenous). No survey of a Canadian population has asked its respondents whether or not they are speed freaks. Rather, they survey, in order of increasing specificity, whether they have used 'stimulants', 'amphetamines', 'speed', or 'methedrine' (methamphetamine). A few ask for the mode of administration. Published results, therefore, often do not allow us to distinguish speed freaks from others who may occasionally use speed intravenously, or intravenous users from oral users. Both the Commission's national survey of high school students and the Narcotic Addiction Foundation of British Columbia's study of Vancouver high school students¹⁸⁰ indicate that a fraction of amphetamine users in those populations have used speed intravenously, but most of these probably used only on an experimental basis.

The numbers of chronic, regular, high-dose, intravenous amphetamine users probably reached its peak in the summer of 1970. All told, based on participant-observation studies and interviews with knowledgeable persons in Canada's major cities, we estimate that there were between 2,000 and 3,000 such individuals at that time, concentrated very largely in the centres of Toronto, Montreal and Halifax. There were perhaps another 3,500 to 4,500 who used high doses intravenously, but not on a regular basis. By the summer of 1971 the numbers in the centres of all of these cities combined fell to perhaps not much more than 1,000 to 1,500 persons. But intravenous users of speed, particularly those involved in intermittent patterns of use, had increased markedly in the suburbs of these cities and in a number of smaller cities in southern Ontario, western Quebec and the Maritimes.¹⁰³

In the summer of 1970, many intravenous amphetamine users used the drug on a regular basis—several injections a day for up to two weeks at a time with only a few days between such 'runs' (see C.4 *Patterns of Use*). This is still the pattern for a much smaller proportion of the total intravenous amphetamine-using population. In addition, however, there now appears to be a population of high-dose, intravenous users who take the drug for only brief periods of time, on weekends or on an episodic basis. If the totals of both these types of users are combined we would estimate that the number of high-dose users was about the same in the summer of 1972 as it was two years earlier, or perhaps marginally larger. Because very few persons regularly use speed for more than a couple of years (see C.4 *Patterns of Use*), there is a continually high rate of withdrawal from the intravenous speed-using population which limits the growth of this phenomenon to the difference between new recruits and new abstainers. This difference is presently such that Canada's speed-using community appears to be more or less numerically stable, although it is a much more dispersed population than was the case two or three years ago.

ORAL USE OF AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

While Canada's speed freak population appears to have numerically stabilized, the oral use of amphetamines and amphetamine-like drugs has

continued to grow. There has doubtless been a degree of 'pill popping' for functional purposes for many years among such people as waiters and waitresses, athletes, students, business executives and entertainers. This phenomenon was still increasing at the time of the new amphetamine regulations of January 1, 1973. Reports from some regions suggest that some tavern-goers, particularly younger ones, have established a pattern of consuming oral amphetamines or amphetamine-like drugs together with alcohol. Reports from all regions indicate that oral use of these drugs is particularly popular among university students, especially during exam periods.¹⁰⁴

Surveys of Canadian populations, primarily involving high school samples, that have asked about any amphetamine or stimulant use (the level-of-use being defined in almost all cases as any in the last six months) have found prevalence of use rates that are remarkably uniform (ranging from five to nine per cent) and that show no sign of significant change from 1968 to 1972.^{6, 17, 32, 34, 42, 78, 80, 81, 82, 108, 114, 115, 154, 180, 205, 225, 240, 241, 251, 258, 272, 273} The Commission-sponsored surveys, conducted in the spring of 1970, found the non-medical use of 'pep pills' reported by three per cent of high school students, six per cent of college and university students and three per cent of the national adult sample. 'Diet pills' had been used non-medically by one per cent of the high school and adult samples, and by three per cent of the college and university sample. 'Oral speed' use was reported by three per cent of high school and less than one per cent of college and university students. Combining the high school use rates reported by the Commission surveys allows us to suggest a representative figure for the prevalence of non-medical use of any amphetamine or amphetamine-like drugs in Canadian high schools of seven per cent. Josephson, *et al.*, in their May 1971 national survey of American youth aged 12 to 17, found that nine per cent had used amphetamines at some time, which tends to support our estimate for Canada.¹²⁸ Between 15 per cent and 20 per cent of the high school students who use amphetamines or amphetamine-like drugs (generally defined as 'pep pills' or 'diet pills') use them more than once a month.^{143, 243}

The Commission's national survey indicates that four per cent of Canadian adults at some time orally used amphetamines or amphetamine-like drugs non-medically. The one other random survey of Canadian adult use of psychoactive substances, that of Fejer and Smart, indicates roughly similar results: as of the spring of 1971, four per cent of Toronto adults had used "stimulants" medically or non-medically during the previous 12 months.⁸² We note later that only ten per cent of Toronto adult users of barbiturates or tranquilizers obtained them without a prescription. By contrast, more than a third of the stimulant users in this same study obtained these drugs without a prescription.

Among adult "stimulant" users, Fejer and Smart found that 51 per cent of their Toronto sample used these drugs daily, seven per cent used them between two and five times per week, and about 19 per cent used them between once a week and once a month.⁸² Thus, 77 per cent of those

Toronto adults who used stimulants (whether medically or non-medically) did so at least once a month. The Commission's national adult survey found that an almost identical proportion of those respondents using 'diet pills' or 'pep pills' at the time of the study did so once a month or more.

If we accept the Commission and Toronto survey findings regarding the incidence of adult use of amphetamines and amphetamine-like drugs (i.e., about four per cent), and if we assume that about one-third use these stimulants without benefit of prescription at least some of the time, then we would estimate that 1.3 per cent of Canadians 18 years of age and over have used stimulants non-medically in the past year, or approximately 171,000 persons. If we apply the high school estimate of seven per cent to Canadian youth, we have 182,000 users, for a total of 353,000 Canadian users of amphetamines and amphetamine-like drugs for non-medical purposes in the past twelve months. The majority of this use would be of the occasional or experimental variety.

CAFFEINE

Caffeine and related xanthines, in the form of coffee, tea, cocoa and cola drinks and various over-the-counter preparations (for example, No Doz®), is the most commonly used stimulant in Canada. Canadians drink 33 million cups of coffee and 30 million cups of tea every day. Canada's tea consumption is only one-quarter that of the United Kingdom or Ireland on a per capita basis, but it is three times that of the United States.²⁸¹ Canada's per capita coffee consumption is slightly below that of the United States.

The Pan-American Coffee Bureau surveys coffee consumption in Canada for an 'average winter's day' when use is presumably at a maximum, and the following statements are about use on such a day. The data are for 1970, but the phenomenon appears sufficiently stable to allow us to apply them to the present. Sixty-four per cent of Canadians ten years of age and over drank coffee on an 'average winter's day', drinking an average of three and one-tenth cups each. Complete data on levels-of-use are not available for Canada. In the United States, however, the 20 per cent of the population who used coffee most frequently each consumed an average of seven and one-half cups of coffee on this typical day. Fifty-three per cent of Canadians drank tea on an 'average winter's day'. We do not have adequate information to comment on the consumption of xanthine-containing cola and cocoa drinks.

HALLUCINOGENS

An impressive array of substances have hallucinogenic properties in greater or lesser degree, including certain varieties of morning-glory seeds, nutmeg, mandrake, belladonna, sweet flag, yagé, a number of mushrooms, including the fly agaric, panaeolus, and psilocybe (the source of psilocybin), the peyote cactus (the source of mescaline), DMT, DET, DOM (STP),

PCP, MDA, and, of course, LSD. Only the last three of these have any currency in the Canadian illicit drug market, and street samples alleged to contain more esoteric hallucinogens are almost always found, on analysis, to be PCP, MDA or LSD, or some combination of these drugs. Those who buy these substances have little control over or knowledge of the quality and purity of their purchases. Because of this uncertainty of identity, we will not attempt to distinguish among substances here. It should be remembered, however, that there is great variation in the potency of these materials, and that some unidentifiable proportion of use will involve low potency drugs or even inert substances that users will report as true hallucinogens. These problems are further discussed in Appendix A.5 *Hallucinogens and Their Effects* and Appendix B.5 *Sources and Distribution of Hallucinogens*.

Information derived from Commission field studies in May 1972 suggests that the number of current hallucinogen users has numerically stabilized, with as many people stopping use as beginning it.¹⁰⁴ This is in accord with an observation made by Goode several years ago about hallucinogen use in the United States: “. . . probably more than any other drug in use the drop-off after the first experience is precipitous. There [is] typically little desire to continue beyond the experimental first few instances.”¹⁰⁰

The Commission surveys (which are the only national surveys to ever have been conducted in Canada) indicate that by the spring of 1970, four per cent of high school students and eight per cent of university students had at some time used hallucinogens. Use in the adult population was only about 0.6 per cent. However, other Canadian surveys, primarily conducted in metropolitan areas, suggest that these figures understate use in 1970.^{6, 17, 34, 42, 81, 88, 108, 114, 115, 133, 154, 180, 205, 219, 225, 239, 240, 241, 242, 251, 258, 272, 273} These studies indicate a current incidence of use of five to ten per cent in high school populations, and over ten per cent in university populations. There was a dramatic increase in hallucinogen use between 1968 and 1970, with use doubling every year. We can assume that the rate of increase has been much slower from 1970 to 1972. Evidence from the United States, usually a bell-wether for North American drug use, supports this assumption. In a national survey of American college students, the proportion of students claiming to have ever used LSD rose from 11 per cent in 1970 to 13 per cent in 1971.¹⁰⁷ Furthermore, a recent longitudinal survey conducted among Toronto high school students has found that the prevalence of LSD use in the previous six-month period declined from 8.5 to 6.4 per cent between 1970 and 1972, while use of “other hallucinogens” rose only slightly from 6.7 to 7.2 per cent during this same two-year period, thus indicating a relatively stable incidence of hallucinogen use.²⁴² Nationally, there has probably been a slight increase from 1970 to 1972 in the proportion who have ever used hallucinogens. The proportion among high school aged youth across Canada who have ever used these drugs is probably not over ten per cent, and we will use that as a maximum estimate for persons between 12 and 17 years of age.

The Toronto adult survey indicates that 2.6 per cent of this population had used LSD in the twelve months preceding the spring of 1971.²³⁹ This figure is in line with that for New York State of a year earlier⁵² and with that for adults in two San Francisco Bay area communities surveyed in 1967 and 1969.¹⁵⁹ It is likely, however, that adult hallucinogen use is higher in metropolitan than rural areas. It does not, therefore, seem appropriate to use the Toronto figure above as a norm for the entire Canadian population over 17 years of age. We have, rather, chosen a figure between the Commission survey's 0.6 per cent ever used rate and the Toronto study's 2.6 per cent current rate of use, namely 1.5 per cent, as a conservative estimate of the proportion of adults who have ever used hallucinogens. This estimate, combined with that for persons between 12 and 17, indicates that approximately 470,000 Canadians have at some time used hallucinogens, which is about three per cent of the Canadian population aged 12 and over. As indicated above, the number of current users appears to be stable.

It appears that hallucinogens are used more than once a month by about 15 to 25 per cent of the Canadian high school students who use these drugs.^{241, 242, 243} It is not possible, at present, to make a definite statement concerning the frequency of hallucinogen use among Canadian college students and adults because of the paucity of reliable level-of-use data about these populations.

ALCOHOL

Alcohol use is widespread in western society. Use has been increasing in Canada (and also in the United States), particularly among young adults and adolescents. This trend was observable even before the recent lowering of the legal drinking age throughout much of Canada.

Canadian surveys of local high school populations record alcohol consumption by anything from 40 to 87 per cent of students, despite the fact that such consumption is illegal for almost all of them.^{6, 17, 80, 81, 108, 115, 180, 219, 225, 240, 241, 242, 251, 272, 273} The Commission's high school survey, which provides the only national data, gives the lowest proportion of any Canadian high school survey for those who have ever drunk alcohol: only 33 per cent. Thirteen per cent of this sample, a little over one-third of all high school drinkers, had had a drink more often than once a month in the previous six months, as of the spring of 1970.

Surveys of university students in Canada and the United States yield estimates of between 80 and 97 per cent as having ever had a drink.^{17, 154, 198} The Commission's college and university survey found that 83 per cent of students reported ever having had a drink as of the spring of 1970, and that 59 per cent of the students claimed to have drunk more than once a month during the previous six months. The Commission's national adult survey indicates that 66 per cent of Canadian adults have had a drink at some time, with one in five Canadian adults (or 2,780,000 persons) claiming to drink alcohol

more than once a week. De Lint, Schmidt, and Pernanen⁷⁵ found that, in 1969, 80 per cent of the Ontario population aged 15 and over, or 82 per cent of the Ontario population aged 20 and over, were alcohol drinkers.

Because the use of alcohol is increasing and because the legal drinking age has recently been reduced through much of the country, we feel that the national Commission survey findings of 66 per cent drinkers among Canadian adults and 33 per cent drinkers among Canadian adolescents are not reliable reflections of current alcohol-using rates in these populations. Instead, we will use a figure between the Commission's findings and those of the Ontario survey, namely 75 per cent, as an estimate of the prevalence of alcohol use among Canadians aged 18 and over, and an estimate of 50 per cent, which is likely conservative, for use among Canadian adolescents. These two estimates yield about 11,716,000 Canadians who have had a drink at some time. (The Addiction Research Foundation of Ontario¹ estimated that there were 11,612,000 alcohol drinkers over 14 years of age in Canada in 1969.) Approximately one in ten Canadian drinkers is drinking illegally because he is under age. It has been estimated that 5.31 per cent of Canada's drinking population (that is, about 617,000 persons) consumed a 'hazardous' amount of alcohol per day in 1969.¹ On the basis of liver cirrhosis mortality data, the Addiction Research Foundation of Ontario has estimated that there were 308,200 alcoholics in Canada in 1967, or about 2.8 per cent of all alcohol drinkers in that year.¹

The de Lint, Schmidt and Pernanen⁷⁵ 1969 survey of Ontario drinking habits found that about 15 per cent of Ontario residents (or 19 per cent of Ontario's non-abstaining population) drank alcoholic beverages (in most cases beer) more frequently than twice a week. Daily alcohol drinkers accounted for less than six per cent of Ontario residents, or about seven per cent of all Ontario drinkers. Of those Ontario residents who drank alcohol in the week preceding their interview (71 per cent of the non-abstaining population), by far the majority (76 per cent) consumed less than 21 centiliters of absolute alcohol during that week (or less than three centiliters a day), while only about three per cent of this group (or less than two per cent of the total Ontario population over 14 years of age) consumed more than 70 centiliters of absolute alcohol during the surveyed week (or more than 10 centiliters of absolute alcohol per day).

BARBITURATES, MINOR TRANQUILIZERS AND OTHER SEDATIVE-HYPNOTICS

Here we are concerned with the barbiturates (such as Seconal® and Nembutal®), non-barbiturate sedative-hypnotics (such as Mandrax®), and the minor tranquilizers (for example, Librium® and Valium®). We omit the major tranquilizers as they are rarely employed for non-medical purposes. These preparations are known by a variety of names in the argot of drug users, but are generally classed together as 'downers' because of their sedating

effects. Certain substances that could be treated under this heading are usually used for their hallucinogenic or inebriant, rather than sedating, qualities. Among these are alcohol (which was discussed above), *Datura innoxia* (thorn-apple), *Datura stramonium* (Jimson weed), and certain belladonna alkaloids such as scopolomine. These last three are only rarely used, and are omitted from this account for want of information.

The Commission's surveys suggest that about one-third of Canadian adults had taken 'sedatives' at some time by 1970, whether medically or non-medically, that about one-quarter had taken 'sleeping pills', and one-quarter 'tranquilizers'. These three groups overlap to some extent. Current and frequent use is less common. For each of these three substances, roughly one Canadian adult in 20 had used it more often than once a week in the previous six months, whether for medical or non-medical purposes.

About one-fifth of Canadian college and university students had used each of 'sedatives', 'sleeping pills' and 'tranquilizers' by 1970, while 15 per cent of high school students had used 'sedatives', and 11 per cent had used each of 'tranquilizers' and 'sleeping pills'. The proportions of current users in high schools and universities are lower than those of adult users of these drugs.

In December 1971, Sidney Cohen (head of the Center for the Study of Mind-Altering Drugs at the University of California, Los Angeles) predicted that 1972 would be the "year of the downer".²³⁵ Field studies conducted by the Commission in May 1972 suggest that this prediction may well have been a valid one. Our reports indicate that the non-medical use of barbiturates, as well as the non-barbiturate sedative-hypnotics (particularly those containing methaqualone), are gaining in popularity in Quebec, Ontario and British Columbia. Reports from the Prairies indicate that the non-prescription use of tranquilizers is also increasing in popularity in this region, but that non-barbiturate sedative-hypnotics are generally not available for non-medical consumption.¹⁰⁴

Studies of drug use in Canadian high school populations do not suggest any significant change in the extent of use of sedatives and hypnotics from 1968 to 1971. These studies found that, depending on region, between three and eight per cent of high school students had used barbiturates in the previous six months and that between eight and ten per cent had used tranquilizers during this period of time.^{6, 17, 78, 80, 81, 108, 114, 115, 180, 225, 240, 241, 251, 272, 273} While a very recent Addiction Research Foundation of Ontario survey has reported a considerable increase (from 4.3 per cent to 18.2 per cent) in the use of barbiturates among Toronto high school students between 1970 and 1972, the rewording of the barbiturate question in the 1972 survey to include "painkillers" may account for the entire increase. As the authors note: "The results from this question should be treated with caution until further data are available."²⁴²

The importance of specifying level-of-use is evident from the data presented in these surveys. A common measure of high frequency use in these

studies is more than once a month in the last six months. With considerable uniformity, about one-fifth of those who have used these substances in the last six months have used them once a month or more. This level-of-use could be described as at least occasional, although some unknown proportion of these students may well be heavy regular users. Thus, by 1971, roughly one per cent of high school students in Canada were at least occasional users of barbiturates, and two per cent were at least occasional users of tranquilizers.

A survey of Toronto adults over the age of 17 in the spring of 1971 revealed that nine per cent had used barbiturates in the previous 12 months and 13 per cent had used tranquilizers. This use could be either medical or non-medical use. Thirty-eight per cent of these tranquilizer users and 24 per cent of those who used barbiturates used these drugs every day.⁸²

What proportion of the nine per cent of adults using barbiturates and the 13 per cent of adults using tranquilizers in Toronto use these substances non-medically, at least some of the time? There is no direct measure of this, but there are indirect indicators. We know that about ten per cent of the users, or one per cent of the total population, did not obtain these drugs by prescription. This proportion is similar to the percentage of persons in the Commission-sponsored national adult survey who reported use of tranquilizers without a doctor's supervision: about ten per cent of all tranquilizer users, or two per cent of the total population. However, the Commission survey collected *ever used* data while the Toronto study was concerned exclusively with use in the previous 12 months. On the basis of these surveys, we may very tentatively suggest that about ten per cent of those Canadians who currently use barbiturates and minor tranquilizers use them without benefit of prescription. This is equivalent to roughly one per cent of the Canadian adult population.

Combining the estimates for high school students (those between 12 and 17) and adults (those 18 and over) yields about 1,380,000 Canadians who have used barbiturates in the past year, and approximately 2,040,000 who have used minor tranquilizers during this same period of time. Of these current adult sedative users, about 180,000 have used tranquilizers and 125,000 barbiturates without a doctor's prescription. Unfortunately, there is insufficient data to estimate the number of Canadian adolescents who have used these drugs non-medically or without a doctor's supervision. However, it is probable that more Canadians use these drugs on a daily medical basis, with a prescription, than use them at all non-medically.

These estimates are based on surveys and, consequently, will under-represent some categories of drug users, for example, heroin or amphetamine users. These persons are known to use barbiturates and minor tranquilizers more frequently than the general population, both non-medically and for self-medication of drug effects. However, their numbers are small compared to those of non-medical users of barbiturates and minor tranquilizers who are available to surveys.

VOLATILE SUBSTANCES: SOLVENTS AND GASES

Volatile substances have always been primarily a pre- and young adolescents' form of intoxicant. These drugs have never been highly regarded in other drug-using circles, and as other drugs (particularly cannabis and alcohol) become available to the 'sniffer', he is likely to shift his preference to them. Glue is no longer the most commonly used solvent. Certain brands of nail polish remover are reported by observers in a number of Canadian cities to be the solvent of choice among these users. Solvent use is now considered an important or increasing drug problem in several parts of Canada, including Nova Scotia and some western provinces. Whether there has been an actual increase in use, or whether this phenomenon has simply become more visible with the increasing attention paid to drug use among young adolescents, is not yet clear.¹⁰⁴

Surveys of solvent use among high school students suggests a stabilization or decline in use between 1968 and 1972.^{17, 32, 108, 241, 242, 251, 258, 272, 273} These studies suggest that between five and six per cent of high school students had used solvents in the previous six-month period. Unfortunately, almost all of these surveys are of populations in central Canada. The Commission surveys found that two per cent of high school students had ever used 'glue' for psychotropic purposes by the spring of 1970. Other surveys of the same period suggest that about twice that proportion would have said they had used 'other solvents' if that question had been asked. Of the students in the Commission's high school survey who indicated that they had used glue at some time, three-quarters had not used it in the preceding six months. This suggests a much lower rate of current use of solvents (including glue) than the other surveys, i.e., about 1.5 per cent. Considering the findings of other surveys and the date of those conducted by the Commission, we feel that a safe maximum figure for current use of solvents among adolescents is four per cent. Current use of solvents among adults is considered negligible.

About 20 per cent of these solvent-using students report use of this drug that averages out to more than once a month. In three major eastern Canadian cities, it was found that 62 per cent of student solvent users sniffed 'glue' less than three times in the six months preceding the study, while 20 per cent did so seven times or more during the same period.²⁴³ A 1972 Toronto survey of high school students found that about one-third of the students who had sniffed 'glue' or other solvents had done so more than one or two times in the six months preceding the study. Less than five per cent of the users reported use of these substances more than 50 times, or an average of at least twice a week, during this same period of time.

TOBACCO

The following table indicates the smoking habits of Canadians 15 years of age and over in 1965 and 1972. During this period there appears to have been a modest decline in the proportion of Canadians smoking cigarettes

daily, but the percentage of heavy smokers (those who smoke more than 25 cigarettes a day), if anything, has risen very slightly during these same seven years.

The distribution of cigarette smoking is somewhat atypical as consumption is concentrated at one level-of-use. Almost everyone who smokes cigarettes at all smokes every day, and about 65 per cent of those who smoke at all smoke between 11 and 25 cigarettes a day.

TABLE C.5

CIGARETTE CONSUMPTION FOR THOSE 15 YEARS OF AGE AND OVER, CANADA
1965 AND 1972, AND DIFFERENCES BETWEEN THESE YEARS*

	1965	1972	Differences: 1965-72
	%	%	%
No use or less than daily	57.2	60.2	+3.0
Daily (total).....	42.8	39.8	-3.0
1-10 a day.....	11.5	9.7	-1.8
11-25 a day.....	27.8	26.3	-1.5
25+ a day.....	3.5	3.8	+0.3
Total.....	100	100	—

* Estimates prepared by the Department of National Health and Welfare from data obtained from the Labour Force Survey Statistics Canada as based on the civilian non-institutional population 15 years of age and over, exclusive of residents of the Yukon and Northwest Territories, Indians living on reserves, inmates of institutions and members of the armed forces.

There is little reliable data on the incidence of tobacco use among persons under 15 years of age. However, high school surveys conducted in Montreal and Halifax²⁴³ in 1969, in Ottawa¹⁰⁸ in 1970, and in Toronto²⁴² in 1968, 1970 and 1972 indicate at least some tobacco use by about 25 per cent of grades seven and eight students and by about 45 per cent of grades nine and ten students. The Ottawa survey, which provides the most complete tobacco use by grade data, shows that 65 per cent of the grades seven and eight smokers consume less than one pack of cigarettes a week, while only about four per cent smoke seven or more packs a week (i.e., at least one pack a day). Among grades nine and ten tobacco-using students, 36 per cent smoke less than one pack a week and about six per cent smoke seven or more packs a week, or at least one pack a day. The Montreal, Halifax and Toronto data do not allow level-of-use analysis by grade or age, but do indicate that between 50 and 60 per cent of the tobacco smokers in these high school populations consume less than one pack, or 20 cigarettes, a week.

Current data regarding the consumption of other tobacco products were not available to the Commission at the time of writing. However, 1964 figures indicate that about 16 per cent of Canadians aged 15 years and over smoked pipe tobacco, and one-half of these persons did so on a daily basis. Similarly, 16 per cent of the 1964 Canadian population smoked cigars, but less than one-fifth did so on a daily basis.

C.3 CHARACTERISTICS OF USERS

A number of the difficulties with regard to providing information on the extent and patterns of drug use have been discussed in C.1 *Introduction* above. These difficulties, such as variations in the methodological sophistication of studies, the narrow scope of most studies and the choice of sample populations also apply to, and limit, the generalizability, validity and reliability of the available data concerning the characteristics of drug users. The most reliable and readily available socio-demographic data concerns the age, sex and socio-economic status of drug users. Therefore, these will be the variables emphasized in this section although other relevant factors will be discussed if valid and reliable data is available. As there are numerous studies of student drug users, but few good studies of adults who use illicit drugs, this discussion will, of necessity, focus mainly on young persons, primarily those in high school and university.

Discussions of survey data on social characteristics related to the use of drugs are predicated on the assumption that these relationships are not only statistically significant but socially meaningful. The assumption is that certain characteristics highly associated with the use of a drug have a predictive value in enabling us to determine which persons or groups are more likely to use that drug, at what levels-of-use, and with what patterns of consumption. Unfortunately, however, epidemiological concentration on specific populations (particularly high school and college students) and the fact that many survey findings refer only to that situation that prevailed at the beginning of the diffusion of hallucinogen use during the middle and late 1960s render any attempt to generally predict on the basis of social characteristics a speculative and often misleading exercise. Consequently, the following review of the social characteristics of Canadian drug users must be seen as a descriptive rather than analytical account, and reliable predictions must await the completion of more comprehensive and dichronic surveys.

OPIATE NARCOTICS

There is wide variability in the ages of heroin users in Canada, ranging from the late teens to over 60 years of age. Until the mid-sixties, most heroin users first became recognized by the Bureau of Dangerous Drugs (B.D.D.) between the ages of 25 and 39, indicating that this was the age range in which heroin users, on the average, were most likely to be first arrested for a narcotics or other offence or to appear for treatment. However, this was not usually the age range in which most users became dependent on heroin.²⁵³

An R.C.M. Police survey in Vancouver in 1945 indicated that over one-half of those arrested had started their heroin use at an average age of 17.4 while the overall average for the sample was 21.9.²⁰³ Dependence first occurred in the late teens or early twenties for over one-half of the samples of British Columbia heroin users who were studied by Henderson in the late sixties¹¹⁷ and by Stevenson and his associates²⁵³ in the mid-

fifties. However, 21 per cent of Henderson's sample first experienced dependence before the age of 18, and most of the remainder became dependent by the age of 30. A recent Vancouver study by the Narcotics Addiction Foundation of British Columbia indicates that the younger patients who have come for methadone maintenance did not become dependent, on the average, until age 21.¹²⁷ Although the age at which opiate users are recognized is declining (see C.2 *Extent of Use*, page 678), there is little evidence that people are using opiates or becoming dependent on opiates at significantly earlier age than did their counterparts in the past. Heroin use, in its beginnings, has been preponderantly a phenomenon of the late teens for several decades.

Patients who came to the Narcotic Addiction Foundation between 1956 and 1963 were questioned about the year they had first become dependent, and this was compared to their records at the Bureau of Dangerous Drugs. Fifty-one per cent had not been recorded by the B.D.D. after three years of regular heroin use. Twenty-eight per cent were still not known to the B.D.D. after five years of dependence.¹¹⁷ Thus, the national statistics at that time were not indicative of age of first dependence because there was a considerable timelag between dependence and becoming 'known' for a large proportion of the known habitual narcotics-using population.

In recent years, however, a growing proportion of new names have come to the B.D.D. from "retail reports" information (i.e., methadone prescriptions). Simultaneously, a greater proportion of persons under age 25 have come to their attention. It is increasingly evident that the timelag between first use of opiates and becoming 'known' is decreasing due to the apparent willingness of young users to apply for methadone maintenance at clinics or to appeal to private physicians for methadone prescriptions within their first year of heroin use.¹²⁷ Furthermore, Commission research indicates that before the new restrictions on the prescribing of methadone came into effect in June 1972, a significant number of methadone prescriptions had been issued to persons who had had little or no experience with heroin. Thus, those who have used heroin may be recognized at an earlier age due to methadone prescriptions, and many young people obtaining methadone are possibly being listed as habitual narcotics users although they have had little or no previous involvement with opiate narcotics (see C.2 *Extent of Use*, page 678).

In addition, this increase in newly reported young users may be a result of changes in law enforcement practices. Recently more police emphasis has been placed on youthful drug users. The young are now more likely to be stopped and searched on the street and their residences are more likely to be investigated. Consequently, there is an increased likelihood that those who have used heroin for only a few months, some of whom may not be dependent on the drug, will be arrested for heroin offences.

Although the above-mentioned factors indicate that the drop in age of known heroin users in recent years may not reflect proportional changes in

the using population, there is, nevertheless, evidence to indicate a small amount of heroin use among young teenagers. Halpern and Mori, for example, found that the proportion of Ottawa English-speaking students using 'opiates' (including heroin) in the two months preceding the survey was 1.1 per cent in grade eight, 3.3 per cent in grade ten, and 2.5 per cent in grade 12.¹⁰⁸ The highest rates of use among Ottawa French-speaking students were found in grades nine (1.6 per cent) and 12 (1.7 per cent). Smart, Fejer and White found that 1.7 per cent of their 1972 Toronto grade seven sample claimed to have used heroin at least once in the six months preceding the survey; in grade nine use was 3.1 per cent; and both grades 11 and 13 had current use rates of 1.2 per cent.²⁴² The Bureau of Dangerous Drugs' most recent tabulations of known habitual narcotics users include 50 persons (or 0.6 per cent of the 1972 total) under the age of 17.

Although the heroin-using population in the United States is disproportionately non-white, this is not the case in Canada. Heroin users here are predominantly white and Canadian born, although there are a few native Indians and a similarly small number of elderly Orientals.

The sex ratio of known users is approximately seven males to three females. However, among occasional users the sex ratio appears to be more balanced. Russell found a 3:2 male to female ratio among high school students in British Columbia in 1969 who had used heroin more than ten times,²²⁵ while a 1970 Vancouver study found the reverse ratio among the same category of users.¹⁸⁰ However, when all students who had ever used heroin were considered, the male to female ratio was approximately 1:1 in both surveys. Smart, Fejer and White found a 3:2 male to female ratio among heroin users in their Toronto high school sample.²⁴²

Most dependent heroin users either marry or become involved in a commonlaw relationship with a member of the opposite sex sometime during their life time. Some have multiple liaisons. They tend to marry persons who are also involved in heroin use and many of these relationships take the form of a kind of business partnership as well as supplying love and companionship. Marriages are often interrupted and sometimes terminated by long prison sentences.

Most heroin dependents who have been studied in Canada and the United States have done poorly in school in spite of average or better intellectual potential.^{253, 263, 266} An analysis of Canadian heroin conviction statistics for the years 1967-1969 revealed that an average of 82 per cent of those whose grade level was stated had failed to reach beyond grade ten.¹³⁵ In Henderson's British Columbia study, more than 80 per cent had left school by age sixteen.¹¹⁷ The reasons for leaving school were predominantly lack of motivation to continue, the desire to work and make money, or a reform school sentence.

Heroin users' difficulties in school carry over into their occupational adjustments, and only a minority have good work records. In a study of users in the United States, Vaillant found that not only dropouts from slum

schools, but also many middle-class users had had employment difficulties prior to opiate dependence.²⁶³ Some have stated that they found their occupations to be uninteresting or not sufficiently remunerative, although some occupational problems may have been a result of juvenile or young adult criminal convictions and prison records.⁹⁵

One of the controversies surrounding the so-called 'criminal addict' is the extent to which his criminal behaviour is due to his drug use (in support of his habit) or existed prior to his introduction to heroin and was likely to have continued regardless. The extent of anti-social behaviour before dependence varies considerably with the population studied in the literature.¹⁴⁹ The percentage *known* to be delinquent prior to heroin use ranges between 50 per cent and 75 per cent in most recent American studies.²⁶⁶ Two British Columbia studies suggest that the range is similar in Canada. Of the patients admitted to the Narcotic Addiction Foundation in the first six months of 1970, approximately one-half had had juvenile or adult convictions,¹²⁷ whereas in an earlier study three-quarters had had such convictions prior to narcotics use.²⁵³ Henderson, in a third British Columbia study, found that although three-quarters of his subjects were to some extent involved in youthful delinquency, less than one-half committed repeated infractions which lead to arrest and conviction, and that these were not markedly different from those reported in juvenile crime statistics throughout the Western World.¹¹⁷ The study by Stevenson and associates found that about one-half of the British Columbia female dependents studied had engaged in prostitution prior to their use of heroin.²⁵³

Heroin consumption and trafficking is usually centred in dilapidated and overcrowded urban neighbourhoods in North America. This does not, however, mean that those who eventually become dependent on heroin are necessarily from lower-class families. Over three-quarters of those that Stevenson and his associates studied in Oakalla prison near Vancouver, had come from homes that were financially comfortable or at least marginally so, with an income sufficient to cover actual needs of the family. Only a minority of the subjects came from backgrounds of actual poverty.²⁵³ Over forty per cent of the subjects in another British Columbia study had come from homes where the father or father substitute was a professional, a white-collar worker or a skilled labourer. Five per cent of the fathers had been unemployed or engaged in unlawful pursuits, but otherwise the occupational distribution was about the same as the population at large.^{117, 167}

In studies of opiate dependents conducted in Canada and the United States in recent years there appears to be a higher incidence than in the general population of families which had been disrupted by death, desertion, separation or divorce.^{58, 117, 253, 266} Many homes, however, were discovered to have been intact, stable and comfortable. Those who eventually become dependent on heroin tend to leave the family early, but this is undoubtedly due in some measure to their premature departure from the school system, and, in some cases, juvenile arrest and subsequent reform school terms.

Although much has been made of unhappy childhood experiences and the resultant personality problems which have been hypothesized to be related to opiate dependence, it has become evident in recent years that heroin users are not, for the most part, suffering from a crippling mental illness.²⁶⁶ They have been said to be maladjusted, depressed, hostile, immature, manipulative, narcissistic, and to suffer from feelings of inadequacy. However, virtually nothing is known about these individuals prior to opiate dependence and it is difficult to determine if these diagnosed characteristics were present prior to the use of heroin or are a result of the life experience and stigmatization of the individual after dependence occurs.¹⁵²

The studies involving psychiatric diagnoses are usually without an adequate control group and are most often conducted in an institutional setting where the individual is often being held involuntarily, stripped of his identity supports and compelled to make an adjustment to a foreign environment.²³ In a study of prisoners in Oakalla Prison Farm, those who had used heroin were no more likely to be transferred to the Provincial Mental Hospital than prisoners without heroin experience.²⁵³ The conclusion of the Stevenson study was that "addicts are basically ordinary people", characterized by an absence of healthy resources rather than by the presence of demonstrable pathology. The relationship between opiate dependence and psychological problems is discussed in more detail in Appendix D.2 *Motivation and Other Factors Related to Opiate Narcotic Use*.

AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

Canadian intravenous amphetamine users tend to be in their late teens or early twenties. The age range of 218 speed users studied in Toronto in 1970 extended from 13 to 30, with the average age for both males and females being approximately 17.¹⁴⁸ Occasionally 'speeders' as young as 12 or 13 have been encountered, and it appears that the mean age may have declined slightly over the past few years as speed use diffused into the suburbs and urban high schools of some regions.

There are usually two or three males to every female in a speed community, although the sex ratio may be a nearly balanced one if all speed users (including those who live with their parents) are considered.^{103, 237}

While some of the first members of North American speed-using communities were college educated, this is generally atypical in Canada.^{179, 195} In a Toronto study, most speeders who did not reside with their parents had left high school before graduating, and between 60 and 70 per cent of the total speed-using sample had failed at least one grade.¹⁴⁸ Commission-supported field studies in Montreal and Toronto collected relatively similar data regarding academic performance and levels of achievement.^{160, 188} Furthermore, only a small minority of intravenous amphetamine users are employed on a regular, full-time basis.¹⁴⁸ Some, of course, are students (up to one-third of the Halifax speed-using population in 1971, for example²⁴⁵) but among those

involved in the 'street scene' there is little desire to work, poor occupational training and, very often, a paucity of legitimate opportunities. Those who do work are engaged primarily in blue-collar employment²⁴⁵ and the occupational histories of unemployed speeders usually consist of multiple short-term jobs of an unskilled or semi-skilled nature such as sign-painting, taxi-driving, construction labouring, go-go dancing, and restaurant kitchen work. It should be indicated, however, that working speed users are less likely to actively participate in a street scene and, therefore, were less likely to come under Commission observation.

Several studies of speed-using populations have confirmed the middle and upper-middle class origins of the majority of their members.^{148, 195, 217, 248} It is probably important to note, however, that residents of Toronto 'speed houses' in 1970 were likely to come from lower-middle and upper-lower class families whereas visiting, purchasing, or transient speeders were more likely to have parents of higher social strata.¹⁸⁸ Commission field researchers found that street speeders described their familial relationships as unsatisfactory and generally expressed negative or hostile attitudes towards their parents. This same research, and another study in Toronto, found that a disproportionately high number of these individuals come from broken or foster homes.^{148, 188} More than one-half of a speed group studied in Toronto had seen a psychiatrist at least once prior to their use of amphetamines.⁶⁹

Although information about the social characteristics of speed freaks is somewhat impressionistic, the pattern of use—chronic, high-dose, intravenous—is fairly clearly defined. The survey data on oral amphetamine use, although perhaps obtained in a more rigorous manner, suffer from another problem: the lack of a clear definition of the type of use involved. Few recent surveys, with the exception of Commission-sponsored research, distinguish between prescription and non-prescription use. The data from surveys which do not draw this distinction should be interpreted with caution.

Commission studies found that in the case of high school students, the medical (i.e., drugs obtained by prescription) use of 'diet' and 'pep pills' was uncommon among those under the age of 15, and that the incidence of such use was relatively constant between ages 15 to 19. Medical use among those in university had its highest rate among those over 30 years of age, while non-medical use was most often found among those between 25 and 29. Fejer and Smart found that among adult drug users in Toronto, 'stimulant' use was most prevalent in the age group 18 to 25. (Data was not presented for those under 18.) The authors state that:

There was no significant difference in age and the duration of stimulant use or in the number of tablets taken in a 24 hour period. However, more stimulant users age 18 to 25 obtained stimulants without a prescription than in the older age groups. About 55% of stimulant users 18 to 25 did not receive their stimulants on prescription compared to 23.5% of those 26 to 45 and none of those over 45.⁶⁸

In the late sixties, the sex distribution of high school stimulant users in Montreal, Toronto and Halifax was about one and one-half males for every female.²⁷² In Toronto high schools in 1970 and 1972, the sex ratio of those who used stimulants within the previous six months was about 1:1, with females constituting a very slight majority of the users.²⁴² The Commission's study of a national sample of Canadian adults found that more than twice as many females (17 per cent) as males (8 per cent) had ever used 'diet' or "pep pills" "under a doctor's supervision", while about the same proportion of men and women had used them without such medical supervision.

Fejer and Smart, however, found that there was no significant difference between the proportion of Toronto male and female adult stimulant users, and while females were more frequent users than men, they had generally been taking stimulants for a shorter period of time.⁸² They also found that while more than three-quarters of the females using stimulants received their drug through a doctor's prescription, only one-quarter of the men did so.

The Addiction Research Foundation of Ontario studies of 1968 and 1970 found that the use of 'stimulants' was most prevalent among high school students whose fathers held professional or managerial positions.²⁴¹ However, in their 1972 study, "no father" and "father not working" categories were added.²⁴² This changed the findings significantly as it was found that stimulant use was highest among those students who had no father. When those with no father and non-working fathers were excluded, a pattern similar to that of the 1968 and 1970 studies emerged. Commission surveys indicated that the non-medical use of 'diet' and 'pep pills' was not clearly or consistently related to personal income or to parental occupation or income. However, the Commission's national adult survey indicates that higher than average rates of 'diet pill' use occurred among persons employed in clerical and sales jobs and service and transportation industries, and among those not in the labour force. The incidence of 'pep pill' use, as reported in the same survey, was higher than the national average among professionals, managers and clerical and sales personnel.

HALLUCINOGENS

People from diverse segments of the North American population have experimented with hallucinogenic substances. The use of LSD and similar hallucinogens began in groups of highly educated persons who were largely from upper socio-economic levels and who experimented with these drugs in medical or quasi-medical settings. As information about these substances spread, a black market gradually arose to serve the needs of those whose curiosity had been aroused, and the non-medical use of hallucinogens diffused, thereafter, through every stratum of society.

The average age of initiation to non-medical LSD use has dropped steadily in the last 15 years. Disturbed children have had LSD therapy in hospital¹⁶ and cases have been recorded of young parents giving psychedelics to their

pre-teen children.²⁶ Cases have also been reported of accidental ingestion by children as young as one year old.²⁵⁹ However, voluntary initiation into non-medical hallucinogen use presently occurs most frequently during the mid- or late teens, and use is concentrated among adolescents and young adults.

Smart, Fejer and White found a strong inverse correlation between hallucinogen use and grade average among Toronto high school students between 1968 and 1972.²⁴² In their 1972 study they found that of those students having an average of 50 per cent or less, 16.3 per cent used LSD, while only 2.8 per cent of those with an average over 74 per cent claimed to use this drug. Whitehead, in his review of several Canadian high school studies, reported a similar pattern.²⁷²

In its beginnings, the 'hippie movement' appeared to be a middle-class phenomenon, primarily involving the sons and daughters of the *nouvelle bourgeoisie*. Indeed, those who were in the vanguard of the 'love generation' had come primarily from the white middle classes of the United States, although there were a few blacks on the periphery of the movement.²⁷⁹ Although the first LSD users were middle class, as early as 1966 it became apparent that LSD was being taken by young people in 'ghetto' areas of New York City²⁶² and that the urban 'hippie' communities attracted young people from all levels of society.

Smart, Fejer and White and Whitehead found a strong relationship in 1970 between father's occupation and the use of LSD and other hallucinogens.^{241, 272} The use of these drugs was highest among the children of fathers who were professionals and managers. In a replicatory study conducted in Toronto in 1972, Smart, Fejer and White found that no significant relationship existed between father's occupation and the use of LSD or other hallucinogens.²⁴² The addition of two new 'father's occupation' categories in the 1972 survey may, however, have been responsible for this finding and, therefore, brings into question the previous correlation.

It appears that in the late 1960s there were many more male than female high school students using LSD and other hallucinogens, although all studies do not confirm this. In one sample, Russell, found an almost 1:1 sex ratio among LSD-using high school students in British Columbia in 1969.²²⁵ Whitehead, on the other hand, found an almost 2:1 male to female sex ratio for LSD users and close to a 4:1 male to female ratio among other hallucinogen users in the same year.²⁷² Smart, Fejer and White found that the male to female ratio for the use of LSD and other hallucinogens among Toronto high school students was greatly equalized between 1968 and 1972.²⁴² In 1968, 5.6 per cent of the male students and 1.3 per cent of the female students used LSD, while in 1972 the rates of use were 7.1 per cent and 5.6 per cent for males and females respectively. However, this difference was still statistically significant. The male to female ratio for the use of other hallucinogens dropped from approximately 2:1 in 1968 to a statistically non-significant ratio of about 7:6 in 1972. Commission survey data gathered in

1970 indicates that the male to female ratio of hallucinogen users was about 3:2 in high schools, colleges and universities, and 2:1 among Canadian adults.

ALCOHOL

As most of the Canadian epidemiological studies concerned with alcohol consumption have sampled either high school students or adults, the data presented here will focus primarily on these two populations.

Data from a number of high school surveys show that older students (those in higher grades) are more likely to use alcohol than younger students.^{108, 242, 243} Social class and academic performance do not appear to be significantly related to use of alcohol among high school students. Male students, however, generally display higher rates of alcohol use than their female counterparts.^{241, 242, 272}

There are very few Canadian studies that provide reliable information on the social characteristics of alcohol users. One of these is a 1969 Addiction Research Foundation of Ontario survey of Ontario residents 15 years of age and over.⁷⁵ This study found alcohol use was most common among persons between the ages of 20 and 49 (about 90 per cent of this age category), and that the incidence of alcohol use declined relatively consistently in all age categories beyond 50 years of age. This same study reported that while 86 per cent of Ontario males used alcohol, only 75 per cent of the females did so. Alcohol use and income-level were found to be directly related, with the incidence of use rising from 60 per cent of those earning under \$5,000 per year to 90 per cent of those earning over \$15,000 per year.

A 1961 Addiction Research Foundation study of the alcoholic population, ('problem drinkers', 'alcohol addicts' and 'chronic alcoholics') in Frontenac County in eastern Ontario, indicates that 16 per cent of this population were women and 84 per cent were men. Seventy-one per cent of these alcoholics were between the ages of 30 and 59, and three occupational categories accounted for over one-half of the alcoholic population: "service and recreation", "craftsmen and production workers", and "unskilled labourers" (other than those included in other occupational classes).¹ However, the methodological problems involved in the detection of alcoholic populations—particularly women—limit the reliability of these findings.

BARBITURATES, MINOR TRANQUILIZERS AND OTHER SEDATIVE-HYPNOTICS

The Commission's national adult survey indicates that there are proportionately about twice as many adult females as males using tranquilizers under a doctor's supervision, and that for every two adult males using 'sedatives' under medical supervision there are about three females. Fejer and Smart found a similar adult male to female ratio for use of tranquilizers, but they found no significant difference between the proportions of male and female barbiturate users.⁸² The fact that females are more likely to use these sub-

stances has been noted in the United States, and by other researchers in Canada as well.^{52, 67, 171, 191, 236}

The Commission adult survey also found that the use of tranquilizers was highest among adults under 30 years of age and among those 60 years of age and over. However, Fejer and Smart, in a 1971 random sample of Toronto adults (aged 18 and over), found no significant difference in age between users and non-users of tranquilizers, although they do report a significant age difference between users and non-users of barbiturates.⁸² The highest incidence of use was found among those between 36 and 50 and those over 60 years of age.

Fejer and Smart also found that adult tranquilizer users and non-users did not differ significantly in marital status, birth place, educational background and occupation.⁸² Barbiturate use, however, occurred significantly more often among persons who were remarried, divorced or widowed than among those who were single, and barbiturate users had a significantly higher level of educational attainment than non-users. No significant difference between users and non-users of barbiturates was found with regard to occupation or birth place.

The Commission's survey of Canadian adults indicates that persons who use tranquilizers are most often employed in clerical, sales or professional and managerial occupations. Persons not in the labour force, including housewives, show an even higher rate of tranquilizer use than members of these occupational categories. These findings would seem to corroborate the generally accepted hypothesis that tranquilizer use is predominantly a middle-class phenomenon.

Barbiturates, tranquilizers and non-barbiturate sedative-hypnotics are used both medically and non-medically by high school and university students in North America. The Commission surveys indicate that Canadian college and university students have about twice as high a rate of tranquilizer use as high school students: about eight per cent of Canadian high school students at some time used tranquilizers obtained by prescription, and an additional three per cent claimed to use them without benefit of prescription; 14 per cent of college and university students had at some time used tranquilizers on prescription, and an additional five per cent had used them without any prescription. A large number of studies indicate that the use of tranquilizers is more prevalent among female than male high school students.^{25, 81, 139, 180, 225, 240, 242, 251} The Commission surveys found this trend to be true for both medical and non-medical use of tranquilizers in both high school and college and university populations.

Whitehead, in a 1969 study of Halifax high school students, found that the highest proportion of barbiturate and tranquilizer users came from homes where the father or "male guardian" was a professional or manager,²⁷² while Smart, Fejer and White, in a 1970 study of Toronto high schools, found that the highest proportions of students who used these drugs came

from families where the father was employed as a professional or a skilled worker.²⁴¹ However, a 1972 Toronto survey found that the incidence of barbiturate use was highest among those high school students reporting "no father" and "father not working".²⁴² These occupational categories were not provided in the 1970 survey. Several surveys have discovered that there are much higher rates of student barbiturate and tranquilizer use if the parents of high school students, particularly the mothers, also used these substances or other psychotropic drugs.^{240, 241}

Smart, Fejer and White and Whitehead found that the greatest proportion of high school barbiturate and tranquilizer users were found among those who had a grade average of under 40 per cent, that this was consistent over time (1968 to 1972), and that there was a statistically significant inverse relationship between grade average and the probability of barbiturate and tranquilizer use.^{242, 272} For example, Whitehead, in his 1969 study of Halifax high schools, found that 17 per cent of those students with an academic average of under 40 per cent had used barbiturates in the past six months while only two per cent of those with an academic average of 75 per cent or more had done so.²⁷²

VOLATILE SUBSTANCES: SOLVENTS AND GASES

There are several differentiable classes of individuals using solvents in North America today. Adult use is rare, but not unheard of. Some housewives, for example, have been known to sniff nailpolish remover. The most common illustration of adult use of solvents, however, involves persons whose institutionalization (in jails or psychiatric hospitals, for example) deprives them of access to alcohol. It has been reported that they would gladly give up their use of solvents and drink alcohol if given a choice between the two.²⁰²

There is some use of solvents, chiefly gasoline, in rural areas.^{68, 86} This activity usually takes place among young boys, and is much less common among adults. Gasoline sniffing is usually performed alone in these areas, a pattern differing from that seen in urban settings where a group situation is often the rule.¹²

Another group of solvent sniffers, and the one given the most publicity, involves pre- and young adolescents. Most American studies deal with lower-class children, who use solvents in 'gang' settings. Less information is available on children and adolescents of other social classes or the solitary sniffer. It appears that the emphasis on lower-class group use is because, "it is in [lower class] neighborhoods that cases come to the attention of police, school officials, etc., with resultant mass media publicity."¹³⁸ It should be emphasized, however, that the low visibility of middle-class solvent consumption does not necessarily indicate a lower incidence of use within this population.

Adolescents who are part of lower-class solvent-using groups are often from disorganized families.^{2, 3, 11, 12, 29, 37, 138, 153, 202, 222} Only a minority are reported to live with both of their parents,²²² a third are said to have an

alcoholic parent,¹² and many are from large families, almost half of one sample having at least four brothers or sisters.³⁷ These individuals often do poorly at school and are frequently truant.^{11, 222} They average one academic year behind their contemporaries.¹¹

By the mid-1960s, Canadian solvent use became visible among middle-class pre-adolescents and young teenagers. Gellman reports that solvent sniffing was first noticed in Winnipeg in 1964 when teenagers began purchasing nail polish remover in quantity.⁸⁶ These youths were far from secretive about the purpose of their purchases and, in 1966, some Winnipeg high school principals estimated that up to five per cent of their students were using solvents.⁸⁶ Most of these student sniffers were not economically deprived but, rather, were from middle-income families. Canadian surveys of solvent users, unlike most of the studies conducted in the United States, have not restricted their focus to lower-class youth and, in general, have found that use of these substances is not particularly associated with the lower-classes. In fact, many studies found there to be no relationship between social class and solvent use.^{81, 240, 241, 272}

Studies of solvent use indicate that such use in Canada is almost exclusively confined to young persons. However, adults are rarely surveyed as to their use of solvents and would, in any case, probably not admit to such an indulgence. From the information available, it appears that, in general, solvent users range in age from about 10 to 14, and that there is very little sniffing among university students and the general adult population. Rubin in a review of American studies conducted in the mid-1960s, found that the average ages of sniffers was reported to vary from a low of 11.9 years to a high of 14.8 years.²²¹ Unfortunately, studies of elementary school children under ten years of age have not been conducted and therefore it is impossible to determine the proportion of children under ten that use these drugs.

Rubin, in his review of American studies, indicates that the ratio of males to females in youthful solvent-using samples ranged between 22:1 and 5:1.²²¹ Recent studies of Canadian public and high school students have found a much more even distribution between male and female solvent users. In the late 1960's, there were slightly more males using solvents than females,^{225, 272} while in 1972, at least in Toronto, this situation seems to have been reversed.²⁴²

Canadian solvent users do not do as well in school as their peers, are more likely than non-users to be from broken families or families where the father does not work, and they are more likely to have parents who use psychotropic substances.^{240, 241, 242, 272}

TOBACCO

Department of National Health and Welfare statistics for the years 1964 to 1970 indicate that between seven and eight per cent of Canadian males aged fifteen years and over "smoke pipe and/or cigars" exclusively. These figures also indicate that less than 3.5 per cent of Canadians smoke cigarettes

at a level-of-use of less than once per day.⁴⁴ As about 80 per cent of Canadian tobacco users smoke cigarettes and do so at least once per day, the following discussion shall deal primarily with this population of "regular cigarette smokers".

As indicated in Table C.6, the proportion of teen-age males who smoke cigarettes regularly has remained fairly stable between 1965 and 1972, while there has been a substantial decrease (on the order of 15 per cent) in the proportion of Canadian males aged 20 to 64 years who smoke cigarettes. The greatest increase in the proportion of persons who smoke on a regular basis occurred among teen-age girls. In 1965, 18.8 per cent of the girls 15 to 19 years of age smoked at least one cigarette per day, while in 1972 28.5 per cent did so. This represents a 52 per cent increase in the proportion of regular smokers in this age group. However, most teen-age girls smoke less than 26 cigarettes per day, and the majority in each year from 1965 to 1972 smoked less than 11. This increase in the proportion of female teen-age regular smokers does not necessarily mean that there will be a substantial rise in the proportion of women cigarette smokers in the future as it may be due, at least in part, to increased female willingness to admit to smoking and to women starting to smoke at an earlier stage. There was little change in the proportion of female regular smokers in other age groups. Health and Welfare statistics indicate that about 40 per cent of Canadian women aged 20 to 44 years smoke regularly, while about 32 per cent of those between 45 and 64 years of age do so.⁶⁵

TABLE C.6

DISTRIBUTION OF MALE AND FEMALE REGULAR CIGARETTE SMOKERS* IN CANADA,
BY AGE GROUP, FOR PERSONS 15 YEARS OF AGE AND OVER, 1965 AND 1972 AND
DIFFERENCES BETWEEN THESE YEARS†

Age Group	1965		1972		Differences: 1965-1972	
	Males	Females	Males	Females	Males	Females
	%	%	%	%	%	%
Total 15 years of age and over.....	54.6	31.2	47.4	32.4	-7.2	+1.2
15-19 years.....	35.0	18.7	35.0	28.4	0.0	+9.8
20-24 years.....	62.1	40.8	52.6	40.6	-9.5	-0.2
25-44 years.....	63.2	40.5	53.3	38.8	-9.9	-1.7
45-64 years.....	58.8	30.3	50.0	31.6	-8.8	+1.3
65 and over.....	32.3	8.0	30.4	10.4	-2.0	+1.5

* Regular cigarette smokers are defined as persons who smoke at least one cigarette per day.

† Estimates prepared by the Department of National Health and Welfare from data obtained from the Labour Force Survey Statistics Canada as based on the civilian non-institutional population 15 years of age and over, exclusive of residents of the Yukon and Northwest Territories, Indians living on reserves, inmates of institutions and members of the armed forces.

There are some noteworthy regional variations in the proportion of Canadians who smoke one or more cigarettes per day (i.e., regular smokers). In 1970 (the latest year for which relevant data was available to the Com-

mission), about 41 per cent of the Canadian population 15 years of age and over smoked cigarettes regularly. The incidence of use in the Atlantic provinces was the same as the national figure, while 47 per cent of the Quebec population smoked regularly. The proportion of regular smokers in Ontario, the Prairies and British Columbia was about 38 per cent.⁶⁶

The regional pattern for male regular smokers was similar to the above distribution. Forty-nine per cent of the national population smoked regularly. The proportion of male regular smokers in the Atlantic region (51 per cent) was slightly higher than the national figure while, in the three western regions, the rate was lower, about 44 per cent. The highest rate of regular use among males in 1970 occurred in Quebec (59 per cent). There were fewer regional variations in the distribution of female regular smokers. Apart from Quebec, where approximately 36 per cent of the female population over 14 years of age smoked regularly, the national and regional incidence of regular cigarette smoking ranged from 31 to 33 per cent.⁶⁶

C.4 PATTERNS OF USE

In discussing the process whereby persons become introduced to and involved in, and depart from the use of drugs, it is helpful to employ the concept of a 'social career' as delineated by Becker and others.^{15, 96, 268, 278} The notion of 'career' permits the understanding of behaviour patterns as developing in an orderly sequence that any individual may pass through—for example: 'experimental', 'occasional', and 'regular' drug user. Attainment of each step in the sequence is a necessary condition for further career advancement, although this developmental process may be terminated or reversed—with varying difficulty, depending on the drug—at any stage.

The concept of a drug career, however, does not necessarily imply that a particular variety of drug use assumes a predominant or determining role in an individual's life. In some cases, of course, this actually occurs—heroin, methamphetamine ('speed') and alcohol dependence being the archetypal examples of this development. In most instances, however, a person's drug-using career is subordinate to other aspects of his life (his academic, occupational and familial careers, for example) and patterned by these conventional demands and obligations. A drug-using career, then, is simply a natural history of drug use: that orderly sequence of stages through which any individual may progress between initial and chronic use of a drug.

It is possible to describe individual career routes for every psychotropic drug. This approach, however, would tend to hinder appreciation of the fact that the process of drug use socialization is basically the same no matter which drug or drug-type is considered. For this reason, the following discussion applies generally to all drugs. There are, however, junctures at which it is critically important to distinguish specific drugs and drug careers from this

general framework. In such instances, the differentiating properties will be discussed and, when necessary, particular career patterns associated with specific drugs or drug combinations will be more comprehensively developed.

Drug use—like any social, recreational or vocational activity—is learned behaviour.* Consequently, the process of becoming a drug user is essentially identical to the learning of behavioural patterns within any sociocultural context. In the case of drugs, a novice must first learn to accept the idea of his personal use of drugs. Subsequent use is likely to depend on learning to acquire, prepare and administer drugs, learning to subjectively appreciate their effects, and learning to accept their use as appropriate behaviour under certain circumstances. The regular use of a drug requires learning the role of ‘drug user’ and, in some cases, learning to become a member of a drug-using subculture. The discontinuation of, abstinence from and relapse to the use of drugs also involve learned behaviours. Learning, then, includes many aspects of drug use: ingestion, patterns of use (frequency, drug preferences, social contexts), meanings of the drug experience, ideology and values, and a host of esoteric skills related to the procurement of drugs and, in some instances, the maintenance of a drug dependence.

This socialization process can best be described with reference to a typology of drug users based on levels-of-drug-use (see C.1 *Introduction* above). These level-of-use distinctions—initial or experimental use, occasional use, and regular use—can be viewed as three identifiable gradations on a continuum of increasing personal involvement with drugs and drug-related activities. These level-of-use categories can also be conceived of as three stages of socialization into drug use, albeit with the caution that progression to any advanced stage is neither irreversible nor a necessary or inevitable consequence of entry into a preceding stage.

INITIAL OR EXPERIMENTAL USE

‘Experimental’ users of a drug are those persons who have not yet learned to effectively use and positively interpret the effects of the drug in question. They usually have no regular access to supplies of the substance, and they are unlikely to have assumed the definitions and evaluations of the using culture. Persons who try a drug but never learn to recognize or appreciate its psychotropic effects are unlikely to advance to occasional use of the drug. They will, instead, terminate their use after a few experimental sessions.

As was pointed out in the *Cannabis Report* with respect to marijuana and hashish, the initial use of a drug almost always depends on a willingness

* Dai, in his study of opiate dependency in Chicago, reached the same conclusion more than 35 years ago when he noted that the “...process in which this pattern of opium addiction is taken over by an individual is not very much different from that in which other cultural patterns are transmitted”.⁷¹

to try that drug.* The exact motivating factors—whether psychological or sociocultural—that predispose an individual to drug use may vary from drug to drug and from individual to individual (see Appendix D *Motivation and Other Factors Related to Non-Medical Drug Use*). However, the willingness to initially experiment (whatever its etiological source) depends on the potential user's interpersonal and attitudinal situation (discussed on the following page) and his effectively dealing with three major social control mechanisms: limited availability, the need for secrecy, and the relative immortality of the act as publicly defined.^{13, 14} Advancement through the stages of a drug-using career will only occur once any inhibiting effect of these controls has been successfully neutralized.

It is important to recognize, however, that the valence or strength of these controls varies from drug to drug, from reference group to reference group, and from time to time. Alcohol and tobacco products, for example, are much more readily available than are the illicit drugs—although access to these substances is still restricted by legal regulations and more informal familial rules that primarily affect use by children and adolescents. Similarly, the need for secrecy resulting from the fear of disapproval or other negative sanctions does not usually apply for most adult use of licit psychotropic substances, but would have some inhibiting effect on most illicit drug experimenters and those adults who dwell in communities which express and follow temperance values. It should be noted, as well, that conventional definitions of appropriate drug-using situations compel many adult users of licit drugs to be secretive about their consumption; for example, a business executive anticipating a tense conference may imbibe alcohol in the privacy of his office in order to keep his co-workers from learning of his indulgence and commenting unfavourably. The non-medical use of 'pep pills' by housewives, athletes and businessmen may also be hidden from friends and relatives for similar reasons.

Public definitions of various types of drug use also change over time and, consequently, alter the moral context of such use and the inhibiting force of these moral considerations. Cannabis use, for example, has recently been divested of many of its negative moral connotations, while the non-medical use of amphetamines has suffered increasing stigmatization over the past few years. Despite these variations, it appears that initial drug use depends on the neutralization of these three social controls—although some types of experimental use are more easily arranged and justified than others.

* There are a relatively small number of persons whose initial drug use was unwitting rather than volitional. This category primarily includes non-medical drug users whose first use of their drug was under medical auspices or whose initial drug experience was accidental in the sense that they were unaware of the psychotropic properties of the substance they were ingesting. Individuals who first received opiates in the course of normal medical practice for the relief of pain and whose consequent dependence has been maintained despite the cessation of the medical condition that initially prompted such use, exemplify this first situation; while instances of unsuspecting persons being given LSD or other hallucinogens (as documented in the case of the 1966 Los Angeles 'Acid Test'^{27b}) illustrate the second of these rare initiation processes.

The problems of availability, secrecy and stigma are usually resolved within the context of initial drug use. Obviously an individual's willingness to try a specific drug is at least partially a function of his previous drug experiences, if any,* and some degree of anticipatory socialization that pre-defines the event as relatively attractive or unattractive. Once one is open to a drug experience, however, his actual use of the drug is more likely to occur in an aleatory—although natural—rather than deliberate fashion. Furthermore, one's initial experience with a specific drug—regardless of the drug or previous drug experiences—is likely to transpire in a social situation in which such behaviour is both tolerated and typical. As Sadava has noted: "The crucial point to be made here is that drug-using behavior . . . is not [usually] a sudden dramatic change in the individual's life and values, but develops as a natural, i.e., not surprising, process within the sociocultural context."²²⁹

Alcohol use, for example, is likely to begin in early or mid-adolescence, with parental permission being granted to test small amounts of the drug in the household living or dining room. Alternatively, a teen-ager may be introduced to alcohol by his peers at a party or after school. In either case, the problems of availability, secrecy, and stigma are resolved by influential friends or relatives who sanction the activity, furnish the drug, and provide a setting relatively safe from legal intervention. The initial use of other drugs occurs in a similar manner, except that parental influence is often replaced by the influence of trusted drug-using friends, relatives or a single intimate (such as a spouse or lover) in the case of illicit substances.

The naturalness of this initiation process is clearly evident in the case of heroin—the most stigmatized and one of the least accessible of all currently used drugs. Many researchers report that a close, friendly association with heroin users almost invariably precedes first use of the drug.^{36, 57, 73, 121, 147, 150, 253, 268} Initial use, when it does occur, is usually (but not always) a spontaneous and unanticipated event in which the experimenter is often gratuitously provided with an opportunity to try the drug.^{57, 117, 121, 150} The novice's initiators are most often experimental or occasional users themselves who—by virtue of their non-dependent state—claim to be in control of their heroin use.[†] Thus, the initiators mitigate the new user's anxieties about the potential dangers of heroin use by presenting themselves as 'living proof' that dependence does not necessarily follow even extensive experimentation.²⁶⁸ Further-

* The relationship between various types of drug use is extensively considered elsewhere in this appendix. (See Annex 1 to this appendix and "Patterns of Multiple Drug Use" on page 726.) It should be noted, however, that both the opportunity and desire to try a personally 'new' drug are somewhat a function of one's appreciation of previous drug experiences and the extent of one's involvement in the world of drugs. First use of hallucinogens, for example, is almost always preceded by a period of 'successful' cannabis experimentation: the more extensive the use of cannabis, the greater the probability of hallucinogen use.^{90, 170, 227, 243}

† Dependent persons do occasionally play an important role in introducing heroin use to others. The most typical of these situations is a love relationship, marriage or common-law union in which the non-using partner first tries heroin in order to experience their dependent spouse's or lover's drug of choice. A large proportion of female addicts were first introduced to heroin in a relationship of this nature.^{70, 128, 172, 174}

more, the drug is sincerely offered to non-users as a pleasant experience rather than out of any desire to cause harm or injury. As Hughes and Crawford, in a recent study of heroin initiation and diffusion in Chicago, have observed:

... initiation to heroin usually occurs in a small group setting, involving only the new user and one or two addicts or experimenters. Most frequently, the initiate is introduced to heroin when he meets a friend who is on his way to cop [purchase] or is preparing to "fix" [inject]; he rarely seeks out the drug the first time. Thus, initiation depends more on fortuitous circumstances than on a willful act by the new user.¹²¹

It should be noted, however, that—theoretically—the first use of a drug need not derive from social interaction with users of that drug. Initial use may also occur as a consequence of accidental discovery of a substance's psychotropic effects (as occasionally occurs with the volatile solvents) or as a result of exposure to media presentations or hearsay which leads to a deliberate decision to obtain and try the drug. However, except for certain licit drugs (such as most solvents, some hallucinogens such as nutmeg, alcohol, tobacco, and pharmaceutical preparations such as amphetamines and sedatives which may be removed from family medicine cabinets) and certain privileged populations (such as the medical profession), the problem of availability remains and, consequently, almost all initial drug use results from interpersonal introductions to the drug. The Commission's university survey, for example, found that only three per cent of Canadian college cannabis users had first tried marijuana or hashish by themselves.¹⁴⁴

The one major exception to the social and fortuitous nature of this initiation process involves those persons who purposefully and privately employ drugs for self-medication or improved functioning. Members of the medical profession—who are familiar with the medical properties of drugs and who have constant access to them—constitute the best documented example of this practice. Whereas illicit drug users generally experience initiation in a primary group setting, doctors and nurses almost always first ingest or inject their drugs in isolation and attempt to maintain the secrecy of their use. By way of illustration, Winick found that not one of his sample of 98 physician-addicts had been introduced to opiate use by others, and that 25 per cent of the doctors' wives were unaware of their husbands' dependence.²⁷⁷ It appears, then, that in the case of doctors, professional training and occupational access to drugs substitute for the interpersonal socialization that characterizes most types of drug initiation.

While availability is obviously a crucial factor in initial drug use, it is clear that only a fraction of those persons granted an opportunity to try a drug actually do so. Goode has reported that 46 per cent of his sample of 200 marijuana users had declined opportunities to try marijuana prior to their initial use,⁹⁹ and a Commission survey of Canadian adults found that only 25 per cent of those respondents who had been offered LSD had in fact used this drug.¹⁴² Furthermore, it appears that the proportion of those who

accept an offer to try a drug is inversely related to the perceived danger or stigma of that drug: the greater the perceived danger or stigma, the lower the proportion of users among those who have access. Table C.7 illustrates this relationship for two British Columbia high school populations.

TABLE C.7
PERCENTAGE OF BRITISH COLUMBIA HIGH SCHOOL STUDENTS WHO HAVE ACCEPTED
OPPORTUNITIES TO USE A DRUG

	VANCOUVER*			OUTSIDE VANCOUVER†		
	offered	ever used	acceptance ratio	offered	ever used	acceptance ratio
	%	%	%	%	%	%
Marijuana.....	64	47	73	49	20	40
LSD.....	47	21	45	27	7	26
Methedrine.....	27	7	26	18	4	22
Heroin.....	18	2	11	10	1	10

* Narcotic Addiction Foundation of British Columbia, Research Department. Drug use among Vancouver secondary students. Unpublished manuscript, Vancouver, March 1971.

† Russell, J. S. *Survey of drug use in selected British Columbia schools*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.

Goode has suggested that the decision to experiment with a new drug is dependent on the novice's perception of the relative danger involved in such use, his perception of the drug's benefits, his attitude toward users of the drug, and his closeness to both the drug's endorsers and those who have proposed the initiation.⁹⁹ Several investigators have reported that the most important determinant in regard to initial experimentation is the degree of 'trust' that an initiate feels for those offering him an illicit drug.^{48, 59, 63, 230}

In some cases, a particular mode of administration may have as great—or even greater—an inhibiting effect on initial use of a drug as the novelty of the drug itself. Previous drug experiences play an important role in this regard: users of tobacco products are unlikely to balk at the prospect of having to smoke marijuana, hashish or opium, and the swallowing of a pill, capsule or tablet (as is the ordinary mode of ingestion in the case of hallucinogen and sedative use) is such a universal procedure that few, if any, novices would hesitate to use a drug because of this administration technique. However, other modes of administration—such as the 'snorting' (nasal inhalation) of cocaine or the use of plastic bags with certain volatile solvents—may be sufficiently alien to many persons to at least initially deter them from such experimentation.

The most dramatic illustration of the inhibiting force of administration techniques concerns the use of drugs that are usually used parenterally (i.e., by injection) such as heroin and 'speed' (methamphetamine). These substances may be snorted rather than injected, but an initiation opportunity is

most likely to occur in a setting in which experienced users are intravenously using the drug. Parenteral techniques (be they subcutaneous, intramuscular, or intravenous) are generally considered painful and, as such, are anathema to most persons whose modes of drug administration, if any, ordinarily consist of swallowing or smoking. For those individuals who have previously injected drugs (usually hallucinogens), the transition to intravenous use of speed or heroin is not difficult. But, for most, this style of use represents a critical departure from their normal drug consumption patterns. One Montreal speeder clearly expressed the significance of such usage:

When you start using a syringe that indicates that you're using heavy drugs—that you're really into the drug scene. The syringe is the cutting off point between soft and heavy drugs.¹⁶⁰

Despite these apprehensions, most persons who have an opportunity to try speed or heroin and have decided to do so will allow an experienced user to inject them once their fears have been verbally or demonstrably allayed.

It is reasonable to assume that someone interested in initially trying an illegal drug will usually take either the first one which is offered to him by trusted friends or that drug which he considers the least dangerous of those available to him in his social milieu. In many cases, cannabis is the first illegal psychoactive drug to which an individual will have access, but the use of one or more of a wide range of other drugs usually predates marijuana or hashish use. Various studies have shown that the use of prescription drugs, barbiturates and amphetamines, glue and other volatile solvents, tobacco and alcohol often precede the use of cannabis.

When questioned about their early drug history, the majority of non-medical users reveal that their first experience was with alcohol. In the mid-fifties, Stevenson and his associates found that almost all of the British Columbia heroin users they studied had used alcohol prior to opiates and most of them had never tried cannabis.²⁵³ As noted earlier, it was not until the mid-sixties, when cannabis became readily available in western Canada, that heroin users indicated concurrent or prior use of marijuana.¹²⁷ Alcohol, as the first drug used by heroin addicts, has been reported by Henderson, Chambers, Robins, Darvish and Murphy, and Kosviner, *et al.*^{52, 117, 137, 215} Hawks and his associates discovered that problem drinking predated the use of other drugs among amphetamine users;¹¹³ Whitehead found that alcohol and tobacco use generally precede solvent use;²⁷⁴ and cannabis-using college students studied by Goode had first used alcohol.⁹⁹ Moreover, two extensive surveys, one of a college population²³⁸ and the other of high schools,³⁰ found that alcohol-using students were much more likely to want to try marijuana than were non-drinkers.

Heroin users have often consumed a wide variety of other drugs prior to opiate use.²⁶⁸ In Vancouver, Johnston and Williams found that in one sample of 186 heroin users, 11 per cent had first used amphetamines, 20 per cent first used hallucinogens, and 32 per cent first used barbiturates, while

the remainder (37 per cent) had used cannabis first.¹²⁷ These respondents, however, were not questioned about their use of alcohol or tobacco. It is evident that for almost all adolescents, the first psychotropic drug used is either alcohol or tobacco.²⁶⁰ Unfortunately, many investigators do not ask about these drugs when collecting drug-use histories of their subjects. Although tobacco and alcohol are legally distributed, the first use of these drugs is often by children or adolescents who are under the minimum legal age.

The use of a number of other legal substances may also predate illegal drug use. A number of studies have discovered that the non-medical use of codeine cough syrups has preceded the use of illicit substances.^{149, 166} Barbiturate use has often been found to precede the use of other 'dangerous drugs' and heroin.^{103, 282} Glue and solvent sniffing may often occur before the use of cannabis or other legally prohibited substances. The relationships among various patterns of non-medical drug use are further discussed in C.4 *Patterns of Use*, "Patterns of Multiple Drug Use".

OCCASIONAL USE

In the *Cannabis Report* occasional users were defined as those persons who consume marijuana or hashish once a month or less. Such operational definitions, however, are inappropriate to a discussion of patterns of drug use in general, as level-of-use distinctions based on frequency and regularity of use are a function of the effects of the drugs being considered, their relative availability, and their legal status. For our purposes then, occasional use will be understood as that using pattern characterized by episodic consumption dependent on fortuitous developments such as the sharing of another's drug in a social setting. Occasional users do not usually maintain a personal drug supply and the use of psychotropic substances has only a marginal role in these persons' lives. Generally speaking, the occasional use of drugs represents a recreational diversion that is approached with a 'take it or leave it' attitude.

The occasional consumption of a drug is usually the first stage of continued drug use beyond initial or experimental use and, as such, is dependent on learning to effectively use and positively interpret the effects of the drug. There are several learning processes which are generally considered prerequisites to any continued use of a psychotropic substance. These include mastering the modes of administration necessary to achieve a desired drug effect, learning to perceive these effects as drug induced,* and learning to subjectively interpret these effects as pleasurable or functional and, therefore, worth at least occasional repetition. These 'lessons' usually result from participation with more experienced users who educate the novice as to the

* The obviousness or subtlety of a drug's effect is a function of various factors, including the drug itself, the mode of administration, the 'set' and 'setting' of the using situation, and the dosage consumed. The psychotropic effects of small doses of cannabis, cocaine or a sedative, for example, may be 'missed' by a naive user, while an injection of heroin or methamphetamine will have immediate, profound and unignorable consequences.

most effective means of consuming a particular drug and sensitize him to those psychological effects which they value and which positively reinforce their continued use. This social education of an occasional user is also likely to include information about safe dosage levels, appropriate behaviour, legal precautions (if necessary), and those activities which are felt to be enhanced by use of a particular drug.

Apart from the desire to be stylish or to avoid embarrassing oneself or one's host, any continued use of a drug—be it occasional or more regular—depends, at least, on the internalization of these first lessons: learning to correctly use a drug, and learning to recognize and appreciate its effects. In the case of some drugs, however, an occasional—rather than regular—consumption pattern may reflect limited availability, prohibitive costs or fear of legal intervention, rather than the 'take it or leave it' attitude that ordinarily characterizes this level-of-use. Cocaine, for example, is often reported as a favourite drug by persons whose financial situation or range of drug-using acquaintances restricts their use to those infrequent occasions when they are fortunate enough to come into contact with persons who possess the drug. In cases such as this, the drug is strongly desired and a regular pattern of use is only avoided because of situational rather than motivational factors.

Finally, it should be noted that the occasional use of a drug may follow as well as precede a period of regular use. This possibility is discussed below in the context of termination and reduction of regular drug-using patterns.

REGULAR USE

Although many individuals remain on a level of drug use that is occasional, spontaneous and serendipitous, for others use becomes a regularized pattern governed by normative restraints. Alcohol is a case in point. For some, it is only used in exceptional circumstances; for others, alcoholic beverages will become a natural adjunct to certain activities or will be consumed on specific occasions in a regular fashion, before dinner or while watching sporting events on television, for example. This does not mean that alcohol will always be a part of these situations, but there is a higher likelihood that it will be used then than at other times.

Not all drugs are used regularly in the same way. Coffee, tea or tobacco are usually consumed throughout the day. Similar patterns of alcohol use are less common and generally restricted to those who are considered in North American society to have a 'drinking problem'. However, regular or ritualized daily use of moderate quantities of alcohol (taking wine with meals, for example) is not considered by most people to be an incontinent level-of-use. With regard to illicit drugs, recent studies of regular cannabis users tend to suggest that patterns of use of marijuana or hashish are somewhat similar to those of alcohol, and that for some users these substances are essentially social or functional equivalents.¹⁸⁷ Frequent use of LSD or cocaine, on the

other hand, is a comparatively rare phenomenon for reasons specific to the effects or the availability of these drugs.

The usual levels of regular use that are attained by non-medical drug users vary according to the kinds of substances that are consumed. In the *Cannabis Report* we operationally defined 'heavy-regular use' as smoking cannabis from twice per week to several times per day. For this substance this is a reasonable definition that would be accepted by most researchers as well as a proportion of users themselves. However, for a substance such as tobacco, even two or three times per week or one cigarette per day would be considered a moderate to light level-of-use compared to the use levels of most tobacco smokers. Similarly, 'moderate-regular use', as we have earlier defined it, may involve the ingestion of cannabis several times per week. This would probably be a reasonable and meaningful operational definition of moderate-regular alcohol use, as long as the doses were not excessive, but would represent a heavy use pattern for a drug such as LSD. Thus, each drug requires its own operational definitions of what constitutes 'light-', 'moderate-' or 'heavy-' regular use.

Some regular drug use patterns involve daily or even hourly administration; others entail less frequent use, but are nonetheless 'regular' insofar as the drug is usually taken in specific situations or under certain conditions. For our purposes, 'regular use' is any pattern of drug use that involves systematic consumption of a drug, even if the frequency of use is quite low. Regular drug use assumes that the individual has developed a set of norms or rules governing the appropriate times and places for drug use as well as the usual dosage levels. In many cases, official and unofficial rules not only regulate drug-taking behaviour, but also behaviour while under the influence of these substances. In the light of this definition, ceremonial or ritual use of drugs (such as alcohol and peyote) is one type of regular use pattern, even though it may only occur once or twice per year. Thus regular use may involve heavy or high-dose use, but these use levels are not necessary conditions of regular use patterns as we have defined them.

BECOMING A REGULAR USER

There are a number of factors which affect the likelihood of establishing a regular use pattern, the dosages likely to be consumed and the frequency and situations of drug administration. In the following section we will deal with those variables which govern the ease or difficulty of adopting behavioural norms of regular non-medical drug use.

THE LEGAL FRAMEWORK

Although alcohol is one of the most popular drugs in non-medical use in Canada, local laws and statutes restrict the times during which it can be purchased (in some 'dry' counties, banning purchase altogether) and the

situations in which the beverage may be consumed. There are also restrictions on the age of the users. Some of these restrictions are circumvented, disobeyed or rarely enforced (the public consumption of alcohol at sporting events, for example), but they still act as constraints on the drinking behaviour of most people. In addition to regulations governing when and where alcohol may be drunk, there are also restrictions on what activities an individual may participate in while under the influence of alcohol, from operating a motor vehicle to being 'drunk and disorderly' in a public place. The purchase of tobacco products is restricted to those over a certain age limit, but otherwise there are few legal restraints on its use other than forbidding smoking in certain theatres, public buildings or conveyances. Coffee, tea, and over-the-counter preparations are universally available and governed only by controls on their manufacture, advertisement and wholesale distribution. There are literally thousands of products on the shelves of retail stores which contain solvents or propellants which may be used for their psychotropic effects. They remain readily available for socially approved purposes, thus making legal control of their use for intoxication extremely difficult. Illicit drugs are much less readily available to most users.

AVAILABILITY OF DRUGS

In order to establish a regular drug use pattern, it is necessary to obtain a sufficient and relatively continuous source of supply. For some users, this source will necessarily be illegal or quasi-legal. Adolescents who have not yet attained the legal drinking age or are too young to purchase tobacco must rely on adults or older adolescents to obtain these drugs for them unless they appear to be older than their years or have been able to obtain forged or stolen identification certificates or those of older friends. For many substances, there is no legal source for the non-medical drug user.

Becker proposed that obtaining a regular source of supply of cannabis was one of the most important aspects of becoming a regular marijuana user.¹³ The necessity of establishing a source of supply is an important factor in becoming a regular user of all illicit drugs, although some substances are more readily available than others. Over the past few years, many drugs which were once difficult to procure have become readily available from a wide variety of sources.

Most non-medical drug users are introduced to the use of their drugs by friends or acquaintances and these friends are also likely to serve as sources of access to the illicit market. In some cases the first regular contact with an illicit marketplace will occur when a group of friends pool their purchasing resources, thus reducing the unit price of the quantity each uses for personal consumption.⁹⁹ Cannabis and LSD users are particularly likely to purchase a specific amount for use over a period of weeks or months, thus reducing the frequency of their contacts with the illicit market, although taking on the additional risk of having 'stashed' drugs found in their possession. Regular

heroin and high-dose methamphetamine users are more likely to buy in smaller quantities and generally use up their purchases almost immediately.

Illicit drugs are not equally available to all drug users. Most individuals who have reliable contacts to obtain cannabis do not know—or care to know—anyone from whom they can purchase speed or heroin. The dealers of most drugs are understandably cautious about selling to strangers and usually require that a regular customer introduce any new purchasers to them. In the case of heroin, a dealer may ask for proof that a stranger is a user of the drug before he will sell to him.^{47, 254} In a study of heroin users who did not become chronic users of the drug, Schasre discovered that over one-half of the ex-users stopped taking heroin as a result of losing their source of supply.²³¹

For some drugs such as opium and cocaine, the expense of the drug and its relative scarcity in Canada militate against establishing regular consumption patterns. Except for a few wealthy dealers and 'rich hippies' who can afford these drugs and have access to a source of supply, cocaine and opium are considered to be 'treat' drugs, consumed only occasionally in Canada when they become available.¹⁰⁴

Although many people begin the use of sedative-hypnotics, tranquilizers or oral amphetamines through doctors' prescriptions, if regular use ensues they may be forced to resort to diverted supplies of these drugs which are purchased on the illicit market. Others may first obtain pills from their friends or the illicit market and later attempt to obtain them legally by convincing doctors to prescribe them.

PSYCHOPHARMACOLOGICAL EFFECTS

One of the major reinforcing factors which encourages repeated administrations and regular use of drugs is derived from their specific physiological and psychological effects. For example, although unpleasant first reactions to heroin are common, some users of this drug claim that their first shot made them feel the way they had always wanted to feel.^{145, 253} For others, a drug may simply be a pleasant experience that warrants repetition in certain social situations. Needless to say, not everyone finds each drug experience to be immediately rewarding, and negative reactions or side effects are a major factor in discouraging repeated use of most drugs.

Because of their dependence-producing effects, certain substances require daily use once a particular level of consumption has been reached. Dependence on the opiate narcotics is considered to be the 'classical' case of drug dependence, and a great deal of research has been conducted to determine the etiology or cause of this condition. (See Appendix D.2 *Motivation and Other Factors Related to Opiate Narcotic Use.*)

In the mid-forties, Lindesmith developed a theory of opiate dependence which he proposed would explain all cases. He concluded that opiate

dependence occurs when an individual learns the meaning of withdrawal distress and consciously uses an opiate to relieve these symptoms or prevent them from occurring.¹⁵¹ After tolerance has developed, the organism requires the drug to function smoothly and, if it is not regularly administered, withdrawal symptoms of varying intensity are experienced. The appearance of these symptoms is crucial to Lindesmith's argument. If they are misinterpreted as some other ailment (a common occurrence when opiates have been medically administered in hospital and withdrawal discomfort is interpreted as a result of the original pathology) dependence does not occur. Similarly, persons who have been experimenting regularly with illicit heroin may interpret their first withdrawal symptoms as a common cold or the flu.¹⁴⁵ It is only when an individual experiences the distress, realizes or learns that it is due to the absence of opiates in his body, and administers the drug to relieve his condition, that the complex of attitudes and behaviour which constitutes dependence appears. According to Lindesmith, it is at this point that an individual first comes to see himself as an opiate dependent.

Whereas drug use is generally believed to be sustained by the positive, euphoric effects of the substance, Lindesmith's work suggests that dependent drug use is also negatively reinforced by withdrawal avoidance. In other words, dependent drug use may be seen as a form of continuous self-medication or anticipatory self-medication.¹⁹² There is some difference of opinion about which drugs, at what use levels, can be said to be used this way rather than solely for their euphoric effects, but we assume that avoidance of unpleasant withdrawal symptoms is an important element of some levels of tobacco, alcohol, amphetamine, barbiturate, opiate narcotic and other drug use, especially, but not only, at daily levels-of-use.

Although the onset of physical dependence has a profound effect on use patterns and life styles of certain drug users, it is not a factor in the drug-taking behaviour of the majority of regular users of most drugs. For these, the frequency with which they indulge and the quantities of the substances involved are regulated by social interaction and normative restraints which are developed over time.

SOCIAL FACTORS

In an earlier section of this appendix we explained that initial and occasional non-medical drug use, like many other activities, is usually learned in a social context. In many instances, regular drug use patterns also become established and reinforced through social interaction. For example, an individual who is using cannabis, LSD or some other hallucinogen from time to time may acquire more friends who use these substances. This increases the likelihood that he will use more often and under more diverse circumstances. With an increasing number of opportunities to use and purchase drugs, the occasional user may be encouraged to use a drug more frequently and may eventually establish a regular use pattern by which he determines which situations are appropriate for cannabis or LSD consumption and which ones

are not, as well as the amounts to use to maximize the effects desired in specific instances. He may come to believe that cannabis use increases the enjoyment of eating and make it a regular pre-dinner ritual in the same way that others will enjoy an aperitif. He may be encouraged to take LSD during an excursion to the country and decide that this experience is much more rewarding than the use of hallucinogenic drugs in the city and should therefore be restricted to rural settings. On the other hand, he may determine that his friends or acquaintances seem to use certain drugs indiscriminately or to excess, and decide to limit his use to specific recreational contexts. A similar process can be observed with persons who decide, through interaction with friends and acquaintances, what situations are appropriate for drinking alcohol, inhaling solvents or taking a number of other substances.

The influences stemming from the drug taker's social milieu which will eventually help to determine his pattern of regular drug use can be summarized briefly as follows:

1. *Information.* Friends and relatives may offer information on situations in which certain substances may be used for specific purposes. For example, it may be suggested that cannabis or LSD would increase the enjoyment of certain movies or concerts or that an over-the-counter or prescription drug can be used to self-medicate adverse drug effects or potentiate the effects of other drugs.

2. *Example.* The occasional user may learn by watching the behaviour of his peers what sorts of situations are appropriate for certain kinds of drug use, and what levels of use can be deemed excessive. Others may show by their example that no observable harm or disruption is likely to result from certain levels-of-use.

3. *Ideology.* Participation in drug-using groups provides supporting ideologies which neutralize some of the negative opinions and attitudes surrounding illicit drug use and provide positive reinforcement and justifications for drug-taking behaviour. For example, cannabis users commonly rationalize their behaviour through the belief that legal substances such as alcohol and tobacco are much more harmful and that smoking cannabis is a minor vice in comparison.¹³

4. *Opportunity.* The more people in the environment who use drugs on a regular basis, the more likely it is that opportunities to use will arise at times when the individual may not otherwise have thought of consuming a drug, and that he will discover more sources of supply of illicit drugs.

PSYCHOLOGICAL FACTORS

Although levels-of-use are often largely determined by interaction with friends and relatives, certain people evidently establish regular use levels at variance with those of their peers or seek out peer groups which have quite different patterns of non-medical drug use. The personality variables which

may affect these decisions are discussed elsewhere in this report (see Appendix D *Motivation and Other Factors Related to Non-Medical Use*). It is sufficient to mention in this context that there are numerous personality factors and events in the personal life histories of some non-medical drug users which help to explain their regular use patterns as well as the inclusion of certain drugs in their pharmacological repertoire.

PATTERNS OF REGULAR DRUG USE

Patterns of non-medical drug use are numerous and varied, depending on the substances involved, their legal status and availability, their psychopharmacological effects, and a number of other factors. In addition, most substances are used in various ways by different people or by the same individuals over time. In the following pages we delineate three major types of regular non-medical drug use: functional, recreational, and dependent. Although each of these categories will be described separately, they are not to be understood as discrete types. Some drugs, alcohol for example, may be used in all three ways. Some people may use a specific drug in one or more of these ways at the same time or gradually shift from one pattern to another over a period of time. This typology does not necessarily constitute every possible drug use pattern, past and present, but is designed as a framework within which the major patterns of non-medical drug use may be described.

Functional drug use involves the consumption of a substance with the specific intention of utilizing one or more of its physical or psychological effects for reasons other than the pleasure or euphoria which the drug may provide. Some drug use may be considered functional in that it facilitates social interaction. However, for our purposes, instrumental or functional drug-taking behaviour will refer to those patterns of use in which the primary intention is to increase task-oriented efficiency or to relieve unpleasant mental or physical conditions. Functional drug use, then, is individual rather than social and specific goal oriented rather than recreational. Recreational drug use, on the other hand, encompasses those non-medical drug-taking activities which are primarily oriented to the pleasurable psychological effects of the substance and are usually restricted to social activities and leisure hours. Dependent drug use usually involves a degree of loss of control over use levels and a strong compulsion to use a drug; thus use may occur in any setting, regardless of the social situation or the immediate mental and physical state of the user.

FUNCTIONAL DRUG USE

Task performance. Drugs of the stimulant category are commonly used with the intention of increasing alertness in task performance. The most common of these are caffeine (which is consumed in coffee, tea, cola beverages and over-the-counter 'wake-up' preparations) and the nicotine in tobacco products. Although coffee and tea are also used in a recreational context,

their effects are employed for stimulation, both consciously and unconsciously, by most users.³³ The well-established institution of the 'coffee break' is usually a social occurrence, but the substance consumed also performs secondary energizing functions.

Stimulants are sometimes used by members of certain occupational groups whose jobs require intense physical activity, alertness or endurance. Amphetamines and amphetamine-like substances are most commonly taken for this purpose by waiters and waitresses,¹⁰⁴ taxi drivers and long distance truck drivers,^{83, 104} and professional athletes.^{50, 90, 91, 92} Students are also known to take them in order to stay awake and 'cram' for final exams.^{21, 89, 249, 270} Certain medical practitioners have been accused of complicity in the development of this type of non-medical drug use. For example, cases have been reported of doctors who administer 'vitamin shots', virtually on demand, to their patients. These injections not only contain a number of vitamin supplements, but also quantities of amphetamines.^{209, 210, 280}

It appears that any form of mood-modifier, whether a stimulant or a depressant, can be perceived by some users to be a means of increasing task-oriented efficiency or performance. Although such use is not well documented it can be assumed that in some cases tranquilizers, barbiturates and low doses of alcohol may be used in this way. Doctors and other medical professionals who become dependent on opiate narcotics often assert that they began use in order to counteract fatigue caused by overwork.^{176, 277}

Self-medication. Self-medication is a form of non-medical or quasi-medical drug use which involves the use of psychotropic substances to ameliorate certain mental conditions or psychological discomfort, or to treat physiological problems. Usually there is little or no medical supervision involved. Alcohol is commonly used for self-medication—a drink before dinner for its tranquilizing effects after a busy day, for example. Cannabis is sometimes smoked to relieve the secondary symptoms of a cold or the flu (see *Cannabis Report*). A number of over-the-counter preparations, such as codeine pills or cough syrups, antihistamines and other substances are used not only for their stated purposes but also for reduction of nervous tension or to induce sleep.

This type of drug use may originate from medical supervision; a physician may prescribe a preparation for the treatment of an allergy and the patient may use it, either consciously or unconsciously, for tension management or sedation. People who initially obtain 'diet pills' to lose weight may take them to combat depression. Similarly, sedatives and tranquilizers are sometimes used for purposes not intended by the prescribing physician. It is often difficult to distinguish between medical use and this quasi-medical type of self-medicating drug use, but it is nonetheless clearly distinct from social or recreational drug use.

One of the more common forms of self-medication involves the treatment of drug effects or after-effects with the use of another drug. This type

of cyclical multiple drug use is discussed in a later section of this appendix. It constitutes an important type of functional drug use as well as a major pattern of multiple drug use.

RECREATIONAL USE

Recreational drug use involves the consumption of a substance, usually in a controlled or non-compulsive manner, during leisure hours. The drug is taken for the purposes of attaining a measure of euphoria, increasing the enjoyment of other leisure pastimes or as an aid to social interaction. Although some recreational non-medical drug use is solitary, in most cases it takes place in the company of family or friends.

Social recreational drug use usually takes place among people who share ideas, attitudes and friendship in addition to their preferences in pharmacological substances. Drug use of this type usually begins in a pre-existing peer group, and regular use levels are often maintained in this same context. Some drug users (heroin dependents and high-dose intravenous methamphetamine users, for example) are likely to move into new drug-using circles when regular use becomes established, but most recreational drug use takes place in groups of like-minded people who would have been associated even if they did not use drugs regularly.

Barbiturates and other sedative-hypnotics are sometimes taken by multiple drug users in social settings, for euphoria or to potentiate the effects of other drugs. Low doses of methamphetamine or 'diet pills' may be used to stimulate or prolong social interaction. Regular use of these drugs, however, is not usually confined to recreational settings.

Sniffing glue and other volatile solvents appears to be primarily a recreational form of drug use. There is little data available on the solitary solvent sniffer and, although this pattern of use is known to exist, most of the literature describes the social use of these substances by adolescents or children within a peer group context.^{12, 37}

Heroin is usually initially used as a social and recreational drug, but this pattern of use is likely to disappear as daily use begins. Nonetheless, not all heroin users become daily users, and some establish regular non-dependent levels of recreational use.^{7, 57, 132, 179, 231, 232}

In the majority of cases, regular, non-compulsive alcohol and cannabis use takes place in a social or recreational setting. These substances are usually perceived by those who use them to be aids to relaxation or communication or as a pleasant means to alter their mental atmosphere or attain a measure of euphoria. They may be used to relieve boredom or simply as a pleasant adjunct to other activities and appear to be a routine and normal part of the regular user's enjoyment of his leisure time.

Particularly in the early days of illicit LSD use, when the avowed sacramental and self-discovery qualities of the psychedelic experience were being publicized, consumption of this drug and similar hallucinogens was

seen as a special event—not only for recreation but also for self-improvement and enlightenment.* However, as hallucinogen use has become more widespread, LSD, MDA and similar drugs are more often taken in recreational settings in a more casual manner, to enhance other social activities rather than as the *raison d'être* of the gathering.

The use of alcohol as a 'social lubricant' is generally recognized and it is assumed by most people that the beverage is used, not solely for itself, but to stimulate social interaction and facilitate relaxation in a social context. Some groups of alcohol users, especially adolescents who are learning to use the substance, get together for the specific purpose of becoming intoxicated. However, as normative restraints develop and the consequences of excessive drinking are learned, there will be a higher likelihood that drinking will become secondary in the social context. Similarly, the 'pot party' where individuals gather specifically to become intoxicated may apply to some groups of new users, but as cannabis use becomes integrated into the life style of the user, it will usually become an adjunct to the ongoing social activity in the same way as recreational alcohol use is generally conceived to be.¹⁸⁷ In any case, most non-medical drug use has its genesis in social groups, and continues to be a social and recreational phenomenon.

DEPENDENT DRUG USE

Once dependence on a drug is established, a pattern of daily—or more frequent—use, regardless of the social situation or the mental or physical condition of the user, will usually begin. Most people who use dependence-producing drugs know that others have lost control of their level of consumption, but few believe at the outset that it will happen to them. Becoming dependent on a drug is usually a gradual process throughout which an individual believes that he has control over his level-of-use while, in fact, the intervals between administrations of the drug become increasingly shorter. During the early stages of dependence, most users would claim that they could 'stop anytime'.

Tobacco dependence is probably the least traumatic as well as the most common form of drug dependence in Canada. Smoking is widely practised and tolerated and readily becomes associated with many events in the user's daily routine: with coffee, after dinner, in various social settings. Many tobacco smokers, in fact, may smoke on a daily basis for a protracted period of time without realizing that if use were discontinued withdrawal effects and craving would be experienced.³³

Dependence on alcohol is usually slow to develop, and during the beginning stages of use the pre-alcoholic's drinking behaviour may be indistinguishable from that of his peers. However, Jellinek suggests that the pre-alcoholic may find the beverage to be more rewarding for tension release than do other

* It could be argued that hallucinogen use which is oriented to self-improvement and awareness is actually a form of functional drug use.

drinkers.¹²⁵ A typical pattern of becoming an alcoholic involves daily use at increasing dosages and perhaps, after a period of months or years of heavy use, the occurrence of blackouts. Sometime thereafter, morning drinking will begin, and the individual and those around him will become aware that he has lost control of his drinking behaviour. This process may take many years, although in some cases it may develop quite quickly, in response to a personal life crisis, for example.¹⁹⁶

Although most 'problem drinkers' are involved in a daily use pattern at high-dose levels, there are several "species" or types of alcoholism.¹²⁵ One of these, which may be called "periodic alcoholism", entails occasional, but severe drinking bouts. These "habitual symptomatic excessive drinkers"¹⁶³ may consume more alcohol over time than do daily drinkers, but they do not exhibit the same degree of loss of control.¹²⁵ Such spree drinking may be just a stage in a career of alcoholism, but some individuals remain at this level and do not become daily dependent drinkers.

It seems, therefore, that not all patterns of use which involve a compulsive relationship between the user and his drug of choice require daily use over long periods of time. Patterns of daily as well as spree use of amphetamines have also been observed. One type of intravenous methamphetamine user encountered by Commission field workers maintained a relatively constant and very high daily consumption level.¹⁰³ However, the more common 'speed freak' pattern consisted of a series of continual 'runs' and 'crashes'. This latter pattern involved daily use at increasing dose levels for periods of a few days to a week. When use of the drug was terminated, a withdrawal phase characterized by physical exhaustion and extreme irritability and depression ensued. The most popular and common remedy for the unpleasant symptoms of this 'crash' was a new injection of amphetamine, and the 'run' would begin again.

Dependence on the opiate narcotics, particularly in their more potent forms, usually develops much more rapidly than dependence on alcohol. For those who eventually do become dependent, the period between first use and daily use of heroin usually varies from a few months to about a year.^{117, 212} Dependent use is most often preceded by a period of social and recreational use. At some point, use becomes more frequent, both socially and in private, perhaps, in the latter case, to cope with stress or tension.²⁰⁴ Almost invariably, the user first becomes aware of his dependence when he experiences withdrawal symptoms and learns that they can be immediately relieved by the administration of an opiate.^{117, 151, 223}

Sedative-hypnotic dependence usually results from medical prescriptions of these drugs. A general practitioner who does not fully appreciate the potential dangers of these drugs may provide his patient with a refillable prescription or the patient may go from doctor to doctor, complaining of the inability to sleep and, thereby, obtaining multiple prescriptions. Some alcoholics have been known to become dependent on sedatives. Barbiturates,

purchased on the illicit market, are sometimes used by heroin dependents, and in later years, when their ability to support a heroin habit declines, some of these persons become dependent on these less expensive pharmaceutical substitutes.^{70, 109} Although youthful multiple drug users are known to occasionally take sedative-hypnotics (particularly barbiturates and methaqualone-containing substances), few cases of dependence in this population have come to the attention of the Commission. Should the use of these substances continue to diffuse, however, a pattern of youthful dependence on sedatives may emerge in the future.

PATTERNS OF MULTIPLE DRUG USE

In recent years there has been a growing social awareness of and concern about 'multiple drug use' or 'poly-drug use'. Although this pattern of drug use is sometimes seen as new and, perhaps, exotic, the consumption of a number of psychoactive substances is not a recent development or one confined to a specific segment of contemporary society. Broadly conceived, multiple drug users are those who ingest a number of psychoactive substances, either simultaneously or at different times. Accordingly, a person who uses alcohol, tobacco and caffeine is a multiple drug user, as are those who consume a variety of illicit substances apart from or in addition to these. Certain patterns of multiple drug use, however, are seen as more dangerous or more cause for concern than others, depending on the drugs involved, the levels and frequencies of use or their relative potential for harm.

In the literature of multiple drug use, the concept is often reserved for only those who use more than one *illicit* drug in a non-medical context. This can lead to certain conceptual ambiguities—where under-aged high school students use alcohol and tobacco, for example—in addition to imposing limitations on interpretations of the data and the cogency of the research results. A meaningful operational definition of multiple drug use should specify what drugs are under consideration as well as the context of use. For our purposes, we are interested in patterns of multiple use of any substances used in a non-medical context.

A second dimension which must be considered in arriving at a workable definition of multiple drug use is the frequency with which psychoactive substances are used and the dosages employed. Most multiple drug use studies employ a minimal definition: the multiple drug user is one who has 'ever used' more than one substance. Such a definition appears to be quite uninformative and unsatisfactory since individuals who have had little experience beyond the experimental stages of use are included with chronic, high-dose users (see Annex 1). Definitions of multiple drug use, therefore, should specify at what levels of regularity and frequency the substances in question are employed and, if possible, supply relevant dosage information.

Multiple drug use may be examined from two perspectives: as either concurrent or sequential patterns of use. In the former case, the emphasis is

on the organization, patterning and interrelationships of the various substances in the life of the user at a particular time. The second perspective, that of sequential multiple drug use, involves the study of the temporal order in which each drug comes to be used or added to the pharmacological repertoire of the user. The concept of 'progression' is often subsumed under the general rubric of multiple drug use. However, sequential drug use may be distinguished from 'progression' insofar as the latter concept assumes that there is a hierarchy of drugs ranging from 'soft' to 'hard', weak to potent or less harmful to more dangerous, and that there is a tendency for drug users to move up this hierarchy to 'stronger' drugs. The emphasis of the term 'sequential' is on the movement from one drug to another without necessarily implying increasing danger or movement to more potent substances, both of which are connoted by the word 'progression'.

CONCURRENT MULTIPLE DRUG USE

Patterns of concurrent multiple drug use may be distinguished as intermittent, simultaneous, cyclical or interchangeable.

When two or more drugs are used, but not at the same time, this pattern may be called intermittent multiple drug use. Thus, an individual may use cannabis and LSD, but not in the same situation. Intermittent multiple drug use often involves two quite different use patterns: the functional use of amphetamines, for example, may not overlap with the recreational use of other substances.

Simultaneous multiple drug use, on the other hand, may be defined as the ingestion of two or more psychoactive substances in such close conjunction that the effects of the drugs are acting on the organism at the same time. Some simultaneous patterns involve the deliberate consumption of two or more substances to obtain a specific interaction effect. An illustration of this is the 'speedball', an intravenous combination of heroin and cocaine or methamphetamine. Others, however, may simultaneously use two or more drugs without being aware of their potential interactive or additive effects. For example, a daily user of a prescribed sedative-hypnotic may also use caffeine, alcohol or other drugs without taking into account his ingestion of the former.

When one drug is used as a substitute for another with similar psychopharmacological properties, interchangeable multiple drug use may occur. Thus heroin users may purchase barbiturates or, preferably, methadone when heroin is in short supply. Although they may find alcohol distasteful while using heroin, heroin users often drink to excess when abstinent from opiates.²⁵³ A number of interchangeable drug use patterns are further discussed in C. 4 *Patterns of Use*, "Social Theories of Multiple Drug Use".

Cyclical multiple drug use is the ingestion of two or more substances consecutively such that the later ones modify or counteract the terminal effects

of the earlier ones. Those who have used alcohol to excess are familiar with the 'morning after' syndrome which often follows. 'Hangovers' are commonly treated by liberal amounts of caffeine, in the form of coffee, tea, or cola beverages. Codeine pills are sometimes used to relieve the accompanying aches and pain, and in some cases 'wake-up pills' or amphetamines are used to counteract post-alcohol drowsiness.

Cycles of stimulation and sedation are a common multiple drug use pattern. 'Diet pills' or other stimulants are sometimes used to banish the 'morning after' effects of sleeping pills. On the other hand, sedatives or alcohol may be used to induce relaxation or sleep after the effects of amphetamine begin to fade. 'Speed freaks' occasionally use barbiturates or heroin, if they are available, to self-medicate adverse withdrawal symptoms after a 'run' of high-dose, intravenous methamphetamine use. Commission research has confirmed that this form of cyclical multiple drug use has lead some speeders to a preference for heroin because of its capacity for stabilizing and tranquilizing without the adverse physical and psychological effects of the amphetamines.¹⁰⁴

Some of the recent concern over concurrent patterns of multiple drug use has been given impetus by what is called the 'garbage head syndrome'. In the spring of 1972, Commission field workers discovered that observers of the youth scene were becoming increasingly aware of this problem in cities across Canada.¹⁰⁴ 'Garbage heads' have been described as the archtypal and extreme multiple drug users who consume a dazzling array of substances sequentially or in combination, with little regard to the consequences beyond 'getting stoned'. With the recent lowering of the legal drinking age, much of this multiple drug use activity has been observed in pubs or taverns where large quantities of alcohol are used in combination with one or more other drugs. Often these young people will have little or no idea what drugs they have consumed, stating that someone offered them a pill of a certain colour and promised that it would get them 'stoned'.

Some observers believe that the 'garbage head' is likely to be a transitory or short-lived drug use pattern in most cases. When some adolescents begin to use alcohol, they go through a period of excessive use, drinking to the point of drunkenness and sickness. Eventually, most of these develop normative restraints and the ability to control their intake and their behaviour under the influence of alcohol. The 'garbage head syndrome' has been observed most frequently in provinces which have recently lowered the drinking age. It appears that whereas most high school aged drinkers and illicit drug users formerly experimented with these substances out of the public eye, they are now readily observable in drinking establishments. It seems reasonable to assume that, particularly after a number of unpleasant experiences, most 'garbage heads' will exert some control over their drug intake and settle into more moderate regular or occasional patterns of consumption.

SEQUENTIAL MULTIPLE DRUG USE

Various 'progression' or 'stepping-stone' theories have been advanced to explain why individuals, having established the use of a particular drug, will experiment further with other psychotropic substances. In order to understand the genesis of these theories and how they came to have currency today, a brief historical introduction follows.

The Prohibitionists in the United States were the first to propose any kind of progression hypothesis:

The relation of tobacco, especially in the form of cigarettes, and alcohol and opiates is a very close one. . . . morphine is the legitimate consequence of tobacco. Cigarettes, drink and opium is the logical and regular series.²⁰⁷

Cannabis was not included as one of the drugs that was involved in this progression as it was not until the 1930s that consumption of marijuana became sufficiently widespread in the United States to receive public attention. The idea of the cannabis-heroin progression was first presented in 1931 by a Prohibitionist physician:

[Marijuana users easily] become engulfed in the abyss of drug addiction, and end their miserable existence either on the gallows, or in penal institutions and insane asylums. The moral and physical resistance to narcotics and alcohol is not only weakened but often destroyed in persons of stabilized personality, who are addicted, even to a moderate degree, to marijuana.⁸⁴

During the thirties and forties, the notion of the marijuana to heroin progression appeared in a few works on cannabis, but there was virtually no supporting evidence that such a relationship existed. Moreover, there was little consensus among these writers as to what factors 'caused' this alleged progression.¹⁵⁸ At this time, those authorities most familiar with drug use—police officials and medical professionals—strongly denied that such an escalation existed.

After the Second World War, there appeared to be an epidemic increase in the extent of heroin use in the United States, particularly among young men of racial minority groups in large urban areas. The popular press suggested that this new heroin 'epidemic' and the 'new breed of addict' had come to opiate use through the use of marijuana. The assertions that cannabis was an extremely dangerous, addicting and crime-inducing substance were beginning to lose credibility at this time due to the findings of the La Guardia Commission and a number of psychiatric studies which appeared between 1944 and 1946.^{35, 55, 85, 161, 165} Some observers of the heroin scene came to the conclusion that cannabis use, *per se*, may not be as dangerous as they had thought originally, but that its use led to heroin and was thus responsible for the 'new breed' of user.

An examination of the social history of opiate use in North America reveals that the 'new addict' was, in fact, not a new phenomenon. The post-war users were seen to be quite different from the middle-class, middle-aged, medically dependent population of the turn of the century.²⁵⁶ However, the

use of opiate narcotics by young delinquents was well established prior to the introduction and diffusion of cannabis. Although thousands of people who would otherwise be considered to be 'respectable' were dependent on patent medicines and home remedies containing opiates, there were also a number of 'underworld' denizens—gamblers, vagrants, and prostitutes—who were habituated to opium smoking or dependent on morphine. By the 1920s, when legal access to opiates had been restricted, a number of clinics were established in the United States to supply maintenance doses of opiates to those who were still dependent.^{150, 234} One of the reasons why these clinics were eventually forced to close was the publicity given to the 'criminal element' in their patient populations.²⁴⁶ Apparently, dependence on opiate narcotics was quite common among the young, the socio-economically disadvantaged and the 'underworld' before the onset of widespread cannabis use.^{71, 136, 140, 250} There is good reason to believe that the post-war 'epidemic' was actually a reflection of a growing trend that had its roots in the changes which took place at or before the turn of the century and had only been interrupted temporarily by the war. The increase in heroin use in the late forties, according to this view, was due primarily to the re-establishment of overseas shipping and transportation routes, allowing once more for extensive illicit distribution of heroin.¹⁵⁸

Once established in the late forties, concern about drug progression, specifically the escalation from cannabis to heroin, continued. However, with the diffusion of the use of LSD, barbiturates and amphetamines in the 1960s, the concept of 'progression' was broadened to take some of these substances into account, and thus the movement from cannabis to heroin is now often considered to be only one of a number of sequential drug use patterns.

Discussions of the relationship between cannabis use and the use of opiate narcotics may be found in Appendix A.2 *Opiate Narcotics and Their Effects* as well as in the *Cannabis Report*. In the latter document, the Commission majority acknowledge that certain individuals would engage in heavy multiple drug use whether they used cannabis or not, but asserted that,

... it is reasonable to assume that many would not engage in certain kinds of drug use if they did not use cannabis.⁴³

They concluded that, although cannabis use may play some role in influencing subsequent use of other drugs, sequential multiple drug use was too complex a process to assign a strict causal significance to one factor or one particular drug.

A number of retrospective studies of heroin users and follow-up studies of marijuana users are also discussed in the *Cannabis Report* and Appendix A.2 *Opiate Narcotics and Their Effects* of this report.^{9, 41, 54, 94, 199, 215} These studies have a number of methodological problems, the most important of which is their concentration on the most 'heroin-prone' populations, such

that the results may not be generalized to the cannabis-using population as a whole. On this subject, Appendix A.2 concludes:

Specific pharmacological properties of marijuana (or any other drug) which might lead to a need or craving for other drugs have not been discovered. It would appear that dynamic and changing social and personal factors play the dominant role in the multi-drug-using patterns reported, and that the specific pharmacology of the compounds involved is secondary.

Historically, a number of varied, and often discrepant, theories have been proposed, all of which attempt to demonstrate that cannabis use is causally related to the subsequent use of other drugs. Although these explanations have differed radically in content as well as their level of sophistication, they will be presented, in the following pages, as a framework through which some understanding may be gained of the numerous mechanisms that may influence sequential drug use patterns or the movement from one drug to another.*

Psychopharmacological effects theories. The first and most classic type of explanation for the progression from marijuana to other drugs is the psychopharmacological effects model. Although these theories vary somewhat in their level of sophistication, the majority are naive and overly simplistic accounts of sequential drug use patterns. All of them single out the effects of cannabis as the determining cause of the progression.

One alleged effect of cannabis that was postulated to lead to heroin use was a loss of self-control or will power which was said to make the user more vulnerable to the use of other drugs.¹⁵⁷ However, although a loss of self-control was alleged, no attempt was made to verify its existence.

Another explanation postulated a tolerance-disillusionment type of progression mechanism. It suggests that the initial 'kick' that marijuana users experience tends to wear off over time due to tolerance. The user then looks for a more powerful substitute. It has also been proposed that cannabis users expect ever-increasing pleasurable effects from the drug and are thus compelled to turn to stronger drugs to satisfy their "taste for drug intoxication".⁹³ This particular theory did not specify why it was only cannabis that could create a taste for intoxication rather than alcohol or other drugs used prior to cannabis. A variation of this general theme suggested that the cannabis user becomes psychologically dependent on the drug and that this paves the way for his subsequent use of heroin.¹⁶⁴

As we observed in the *Cannabis Report*, there has been no empirical verification of these theories, and no evidence that the effects of cannabis *per se* can be said to encourage later heroin-using behaviour.⁴³ If the psychopharmacological effects of cannabis do in fact influence the user to turn to stronger drugs, we would expect a relatively constant rate of progression

* Comprehensive discussions of various 'progression' theories may be found in several papers by Erich Goode²⁶¹ as well as the published and unpublished works of Jerry Mandel.^{156, 157, 158}

from marijuana to the use of heroin or other drugs.* However, there is no evidence to date which would suggest that all cannabis users—or even all cannabis users at a particular level-of-use—are equally likely to use other drugs in the future.^{29, 98, 126}

In addition, if one examines the processes by which people come to use heroin, it is difficult to single out cannabis use as a determining factor. There is no evidence to suggest that first use of heroin occurs when the individual has little power of resistance due to the direct effects of cannabis. Whether someone experiments with heroin or not depends on various aspects of his life style, his attitudes to the drug, as well as his past experience with heroin users. Finally, it is evident that the factors which influence first use or experimentation with heroin may be quite different from those which lead to opiate dependence (see Appendix D.2 *Motivation and Other Factors Related to Opiate Narcotic Use*).

Since cannabis is not a necessary precursor of heroin use (before 1965, few heroin users in Canada had taken cannabis prior to opiates),^{117, 194, 253} the most we may assume is that the effects of the drug could only be influential on certain cannabis-using persons, and that others find another path to heroin dependence. This type of thinking brought theorists to the point where they began to look at personality variables for the motivating forces leading people from cannabis to the use of other drugs.

Personality abnormality theories. The basic assumption of this kind of theory is that the majority of those who progress from the use of cannabis to the use of other drugs are, to varying degrees, psychologically disturbed. It is sometimes suggested that the use of cannabis is, in itself, indicative of an underlying personality problem and that those with more severe problems will not find cannabis to be a sufficient solution. They will, therefore, go on to heroin use (or the use of other drugs) in search of a more adequate problem-solving drug.

Psychological investigation of multiple drug users is usually conducted on those subjects whose patterns of drug use are assumed to be a cause for concern. Most observers, for example, would not consider daily use of alco-

* Some observers have tried to see if this hypothesis of a constant proportion of cannabis users later becoming heroin users is reflected in arrest statistics. The relationship between the arrest rates for cannabis and heroin have been used as a basis for both 'pro-progression' and 'anti-progression' arguments.^{22, 107, 131, 159, 158} There are, however, major methodological problems involved in the use of this kind of indirect indicator. In the first place, heroin users are believed to be more vulnerable to arrest than cannabis users, and therefore heroin arrestees would represent a larger proportion of the real using population. In addition, heroin users are likely to experience multiple arrests, thus inflating their numbers.⁴⁰ Finally, it is generally believed that arrest data are most often reflective of law enforcement activity and emphasis than of incidence of use in the population (see C. 1 *Introduction* above).

Another approach that has been utilized is to search the records of heroin users to see if they were previously cannabis (or other drug) users. C. Hammond, late of the Division of Narcotic Control (now, the Bureau of Dangerous Drugs), supplied the Commission with statistics on those cases which came to the attention of this agency between January 1969 and October 1970. Although this data suggest what proportion of known Canadian heroin users were known to also have used cannabis, it fails to reveal what proportion of the cannabis-using population is likely to subsequently use or become dependent on opiate narcotics.

hol, caffeine and tobacco to be indicative of an underlying personality disorder because of the legal status and general social acceptability of these drugs. Attention, therefore, has largely been focussed on chronic or high-dose drug users and those whose multiple drug use patterns include the use of illegal substances.^{64, 113, 141, 168, 284}

Although continuing to yield interesting data, psychological studies of multiple drug users do not provide us with precise information regarding the role of psychological variables in the choice of drugs in a drug-using career. Most of them are characterized by the same methodological problems as those studies which have attempted to discover the psychological dynamics of heroin dependence, the 'addict personality', or the 'alcoholic personality'.^{38, 87} While some types of heavy multiple drug use would seem to indicate personality problems, many multiple drug users would clearly be diagnosed as psychologically normal. The relationships between psychological variables and the use of opiate narcotics, amphetamines and hallucinogens is further reviewed in Appendix D *Motivation and Other Factors Related to Non-Medical Drug Use*.

Social theories of multiple drug use. Although it is reasonable to hypothesize that increasing use of stronger drugs reflects the existence of severe personality disorders in some cases, other evidence suggests that factors in the social background and environment of the drug user may influence his particular sequential drug use pattern. Patterns of drug use reflect different meanings attached to drugs by different groups of individuals, and drug-taking behaviour is interwoven with other activities of group life.³ Orientation to and eventual selection of drugs, as seen from a sociological perspective, reflects a number of factors such as availability, information, and other influences in the immediate social environment.

With the use of one drug comes an increased likelihood of meeting others who use that drug and, perhaps, use other drugs, as well. That cannabis users are more likely than non-users to have drunk alcohol suggests that alcohol users have a greater chance of having friends who would be willing to offer cannabis to them. Similarly, the use of cannabis may introduce an individual to a wider range of persons who use a variety of legal and illegal drugs, and it has been hypothesized that this 'drug subculture' is a significant determinant of further drug use. However, the illicit 'drug subculture' is by no means a homogeneous entity and is better characterized as a mosaic of small 'drug subcultures'. Multiple drug users may have in common the use of one or more illicit substances, but they differ in terms of patterns of multiple drug use and in their orientation and attitudes to specific kinds of drug use. A number of studies have confirmed that the choice of drugs which are to be included in the pharmacological repertoire of the drug user appears to be mediated by the immediate social and cultural environment.^{3, 29, 56, 126, 141, 195}

Many of the same factors which help to determine regular drug use patterns also influence the numbers and kinds of drugs included in any variety

of multiple drug use. As we have seen, availability of illicit substances plays an important role. Some degree of interchangeable multiple drug use is alleged to occur when an individual's current or favourite drug becomes unavailable or prohibitively expensive. The importance of this factor was emphasized by the R.C.M. Police in a brief submitted to the Commission:

... the scarcity of marihuana would act as a catalyst in introducing the drug user to stronger drugs which may be available, such as L.S.D., amphetamines, barbiturates and heroin. ...²²⁰

During the summer of 1969, a marijuana shortage was reported in the United States, and a study was undertaken to investigate its effects.¹⁶⁸ Interchangeable multiple drug use patterns were reported by over three-quarters of one sample and by 84 per cent of another sample. The most common substitutes were alcohol and hallucinogenic drugs.

Some juveniles may use cannabis as a substitute for alcohol when it is more readily available to them in their immediate environment.³ It has also been suggested that volatile solvent users actually prefer alcohol as an intoxicant, but use solvents because they are too young to have ready access to alcoholic beverages.* It is evident, therefore, that sequential multiple drug use is sometimes encouraged by scarcity of the drug of choice and the substitution of a different intoxicant.

In our earlier discussion of the process of becoming a regular drug user, access to the illicit marketplace was emphasized as an important factor. Such access may also play a role in introducing an individual to new drugs which he might not have previously used. Some observers feel that the illegal status of cannabis and the consequent fact that one must resort to the illicit market to purchase supplies may introduce cannabis users to a wider variety of illicit substances:

By transacting with, and making friends with, the marihuana "dealer" ... one's values and attitudes toward drugs and drug-taking, will be influenced in the direction of an increased willingness to try and use a wide range of drugs. Moreover, one's dealer, offering as he does a pharmacological feast, provides opportunities to use other drugs.²⁶¹

Heavy use of cannabis has been proposed as one condition that will lead to the non-medical use of other drugs. However, there are a number of intervening variables which come between heavy cannabis use and subsequent multiple drug use. The more cannabis used by an individual, the more likely it will be that he becomes involved in *both* buying and selling marijuana or hashish. Furthermore,

* Cases have also been reported of older brothers introducing cannabis to their younger brothers in an attempt to provide what they see as a less harmful substitute for glue or other solvents.²⁹

Buying and selling push the individual into social relations that alter his conception of himself regarding drug use and provide opportunities for involvement with other kinds of drugs. The fact that the individual has bought and sold marijuana means that he has had contact with other individuals who are likely to be heavily involved in drug use and who define drug use in favorable terms.⁶⁹

Thus, closely related to the buying and selling of cannabis is the contact with new acquaintances and friends who use other drugs and define such use positively.^{25, 126}

The original correlation between frequency of use [of marijuana] and the use of dangerous drugs is largely due to involvement in selling drugs, not use itself Thus the causal link between marijuana use and the use of dangerous drugs does not appear to be the use of marijuana at all. Use of marijuana is merely an external manifestation of something that underlies it—namely, involvement with and in a drug-using subculture, especially in the form of buying and selling illegal drugs, and having friends who use other dangerous drugs.⁶⁸

We come, therefore, once more to the importance of the drug use patterns of one's peers in introducing an individual to any kind of drug use.

Johnson concluded that the less socially accepted a drug is in the immediate social environment, the more likely it will be that an individual will need to acquire intimate friends who use it before he himself will experiment with the drug.¹²⁶ The cannabis users in his sample used the 'harder' drugs of which their subculture or circle of friends approved. Without the acceptance of friends, the chances of cannabis users moving to other drugs was considerably decreased.

The influence of set and setting on multiple drug use. Some recent theories of sequential drug use have combined both psychological and sociological orientations. The 'set and setting' theory emphasizes individual circumstances, suggesting that it is an individual's psychological 'set', or complex of attitudes towards drugs, in combination with his particular environment, or 'setting', which determines subsequent drug use. This argument has been extended to suggest that some drugs may be no more than placebos, or that the psychopharmacological action of the substance is unimportant in comparison to the influence of set and setting.²⁷¹

One study of juvenile multiple drug users discovered that within a single lower-class neighbourhood there co-existed a variety of adolescent drug-using patterns.²⁹ These patterns differed markedly from one another in terms of the types of drugs used, the degree of involvement in drug use, and in the attitudes and orientations of the users prior to and after first experimentation. The study concluded that there were different life orientations and both drug and non-drug career lines along which adolescent users could pass,

and that these would largely determine subsequent adult drug use behaviour as well as adult social adjustment.

The 'set and setting' approach to understanding multiple drug use patterns appears to be a most fruitful one. It is evident that there are strong relationships between the use of all drugs; that is, the individual who has used any one drug (including alcohol, tobacco and caffeine, as well as more exotic substances) has a higher likelihood of having used other substances and is also more likely to be favourably predisposed to experiment with other drugs in the future. Any non-medical drug use may contribute to or enhance a drug-taking set and may also introduce the user to a wider setting in which further drug use is accepted or positively encouraged. There are a variety of factors which contribute to a positive set towards drug use, but which are insufficient predictors of subsequent multiple drug use patterns unless a suitable setting, with drug availability and reinforcement from others, coincides with it.

For further information about the relationships between different kinds of drug use, the reader is referred to Annex 1 *Extent of Multiple Drug Use* of this appendix, and Appendix A *The Drugs and Their Effects*.

LIFE STYLES OF REGULAR DRUG USERS

Some levels of regular drug use have profound effects upon the social and economic relationships of users. Others, such as the use of coffee, tobacco and certain over-the-counter preparations, have little or no immediate influence, although long-term medical complications may occur. Daily use of sedatives, oral amphetamines and tranquilizers at moderate dosages may eventually interfere with day-to-day functioning, but high-dose use is generally responsible for most serious difficulties.

At light to moderate dose levels, regular alcohol use is both socially acceptable and unlikely to present problems for the user. In fact, in some social and economic positions, it may be more difficult to be an abstainer than a drinker. Moderate use may cause some degree of economic inefficiency due to hangovers or other potential medical problems, but is unlikely to disrupt social and familial relations as long as the user's behaviour under the influence of alcohol and his particular level-of-use are acceptable in his social milieu. At dependent or high dose recurrent use levels, alcohol usually produces extreme social, economic and family disorganization, probably more so than any other kind of drug dependence. Since alcoholism usually develops in middle age, it is likely that the alcoholic will have a career and family which will suffer as a result of his drinking habits, whereas heroin and high-dose methamphetamine dependence tend to occur among younger, unattached people. The consequences of the onset of dependence in the latter cases tend, therefore, to have less far-reaching disruptive effects.

The use of cannabis at social or recreational levels need not have any more effect on the life style of the user than similar use of alcohol, as long as use remains undetected by law enforcement officials. When cannabis first

became popular among certain youthful North American populations, its use appeared to reflect a distinct kind of life style, most commonly termed 'hippie'. However, as the use of cannabis has diffused, it has become evident that quite ordinary, traditionally employed persons consume it in recreational settings on a regular basis, and that cannabis use, although a concomitant of the 'hippie ethos', does not necessarily imply attitudinal or behavioural changes.

The case of LSD, mescaline and other psychedelic drugs is somewhat similar. When LSD was first gaining in popularity, both observers and users themselves claimed that taking these substances would change an individual's attitudes, outlook and style of life. The vanguard of the psychedelic movement found LSD use to be profoundly enlightening and the revelations experienced under the influence of the drug were believed to have led to a re-evaluation of their lives and the adoption of new behaviour patterns and levels of social interaction. However, when use spread to younger or less philosophically-oriented populations, it soon became evident that this process was not inevitable. Less introspective or more hedonistic users were consuming these drugs for their euphoric effects rather than for personal, philosophical or religious purposes. Many of those who had sought personal change through these drugs were disappointed and stopped using them or began to use them more casually. For most, LSD became just another 'stone'.

In the early stages of use, both heroin and speed users usually have one source of supply of the drug, through the friends who introduced them to it. Those who continue to use these drugs discover that, due to the vagaries of the market, new contacts must be made.²⁶⁸ Although some social relationships with non-using friends will be maintained,¹¹⁷ it is likely that a gradual separation will be made from some of these as heroin or speed use becomes more regular, and new friendships will develop through the illicit market (see Appendix D *Motivation and Other Factors Related to Non-Medical Drug Use*). When heroin or speed use becomes a daily affair, the ritual of the 'fix' (administering the drug) becomes the central feature of the activity of everyday life, and many heroin dependents and compulsive speed users spend the majority of their waking hours searching for drugs or the money to purchase them.^{20, 103, 162, 247, 268}

Much of the isolation of the speed user from conventional and non-speed society is due to the constant chatter, or 'rapping' of the speeder, his hyperactivity and paranoia. The pharmacological effects of the opiate narcotics, on the other hand, do not have such adverse influences on social relationships with non-users; however, the necessity of obtaining money to buy daily supplies of illicit heroin at inflated prices forces the user to become primarily involved in heroin-related activities and to lose contact with many aspects of his pre-heroin life. This situation does not apply to those who become dependent on opiate narcotics through access to medical supplies. A doctor or nurse who has become dependent will usually continue to function adequately in both professional and social roles. In one sample of dependent doctors, 25

per cent of the wives did not know that their husbands were dependent,²⁷⁷ and friends and colleagues usually do not suspect that a medical professional is using opiates until he comes under scrutiny by narcotics investigators because of his prescribing practices or because his habit begins to exceed the amount of the drug that can be obtained by quasi-legal means without detection.

Some types of regular drug use—particularly alcohol, heroin and methamphetamine dependence—often generate a host of acute and chronic medical complications. Many of these are considered in a separate appendix (see Appendix A *The Drugs and Their Effects*), but it is worth repeating that the use of unsterile needles is particularly likely to result in physical problems. The personal risks involved in the utilization of ‘dirty points’ (unsterile, barbed, or often-used needles) are well recognized by most heroin and speed users, yet it is not uncommon to observe such persons borrowing someone else’s ‘set of works’ (syringe and needle) despite the foreknowledge that the lender may have hepatitis or venereal disease. Howard and Borges after interviewing 50 parenteral drug users in San Francisco in 1968, suggested that needle-sharing served several social and psychological functions for the participants.¹¹⁸ Among those functions delineated by their subjects were certain “pragmatic considerations” such as economical expedience, “sharing for the sake of sharing” (which is almost a normative imperative within some communities of intravenous drug users), providing “a sense of fraternity”, as a “means of socialization” to the needle culture (novice users, particularly, are unlikely to possess their own equipment), as a “substitute for sex” (since the sexual connotations of injection are accentuated), and “gratification in self-destruction” either purposefully (masochism) or unconsciously. It should be additionally noted that, in the case of speeders, injection almost always occurs in a group setting such that one ‘set of works’ will be passed from user to user (much like a marijuana cigarette in a cannabis-smoking situation) and that speed dealers’ rooms are ordinarily furnished with a communal needle and syringe so that clients may immediately inject upon completion of their purchase. Finally, the actual injection process itself, among experienced speeders, is highly ritualized to the point that parenteral proficiency and the ability to perform ‘trick shots’ has become a source of some status within this subculture.

TERMINATION OF USE

Once a particular level-of-use has been established, an individual will not necessarily stay with it indefinitely. Drug use, like other forms of social behaviour, is a dynamic process during which levels-of-use increase, decrease and, in some cases, cease altogether. In the following pages, we will present some of the factors which influence decreased use or termination of use.

Some social and recreational drug use is only experimental or occasional and never becomes established as a regular part of the individual’s life style. Cannabis, LSD, speed, heroin and other drugs may be used a few times to

explore their effects or because of certain social pressures, but with no commitment made to their continued use. In addition, some levels of regular or occasional use may be a part of a given social context and will cease when the social situation changes. Termination or reduction of drug use may thus occur with graduation from school, change of residence or neighbourhood, a new job, marriage, parenthood or a number of events in the life of an individual. These events may influence drug-using behaviour in several ways: by removing a person from his source of supply of illicit drugs, by replacing an interpersonal environment in which there are social pressures to use with one where use is discouraged, or simply by offering a number of substitute activities. These conditions of termination are reversible, however, and if new drug-using friends or acquaintances are discovered or the social situation changes again, drug use may resume or increase.

Reduction or termination of use may take place as part of a general re-evaluation of an individual's personality and role in society or as a commitment to other endeavours or enterprises. Some drug users become involved with political movements that do not approve of drug use. Others may stop using because of involvement with religious groups, the 'Jesus Freaks'¹¹¹ or 'Hare Krishna' movement, for example. In addition, drug use may be temporarily or permanently terminated because of a personal identity crisis which leads an individual to question his values and behaviour in general. Some users may temporarily refuse to use cannabis or LSD, for example, because they feel they 'are not together enough to handle it' for the time being.

In an earlier part of this appendix, we suggested that most use of LSD and similar hallucinogens is usually self-limiting and transitory. Ex-users often cite 'bad trips' or uncomfortable experiences as their reason for stopping. This rationale is sometimes offered by ex-cannabis users as well. Others claim that they are no longer learning anything from LSD or that it is no longer possible to obtain unadulterated or 'pure acid'. The growing sensitivity of some illicit drug users to the dangers of pollution, chemical fertilizers and food additives is sometimes generalized to the drugs they consume, although this usually results in a move away from 'chemicals' to what are alleged to be more 'organic' drugs, such as psilocybin, mescaline or peyote, rather than to complete termination of drug use. The publicity given to the possibility of chromosome damage may have convinced some people to stop using LSD; however, it appears that users and potential users did not regard this to be a real danger, or, if they did so, it was only for a short period of time.*³³

In most cases, solvent use is also a transitory drug use pattern. Children and adolescents may use these substances, sometimes quite heavily, for a period of time, but it is apparent that this use is usually abandoned when they become old enough to obtain alcohol, cannabis or other more socially approved drugs with fewer unpleasant side effects.²⁹ Ex-users usually report that they simply lost interest in these substances or became worried about

* See Appendix A.5 *Hallucinogens and Their Effects* for a discussion of LSD and chromosome damage.

their harmful effects.²⁴¹ There are certain rare cases of people who continue to sniff solvents long after their friends have stopped using. This chronic pattern of use is usually solitary and compulsive.

Because task-performance functional drug use is specifically related to certain role-oriented situations, it is to be expected that it will continue on some level until the user is no longer participating in the activity. Those who are not familiar with the recreational possibilities of prescription drugs will be likely to use them only in those situations in which they feel it helps them function, but not at other times. Although students may use stimulants at exam time to keep them awake while studying, they are less likely to take them at other times or in other social settings. Similarly, members of occupational groups who utilize psychotropic substances are unlikely to use them outside of their hours of work unless they are familiar with the recreational use of these drugs or, in rare cases, have become dependent on them. For example, waitresses on the fringes of the entertainment world may well continue in their use of amphetamines or amphetamine-like drugs during non-working hours. However, truck drivers or taxi drivers who are only familiar with their use in a functional context are unlikely to use amphetamines during their leisure hours or after changing to another occupation. Self-medicating functional drug use is bound to specific psychological and physiological conditions and is not likely to continue after the condition is ameliorated unless the user becomes dependent or learns that the drug can also be used recreationally. Finally, it should be noted that the loss of a regular source of supply may force a cessation of functional drug use. For example, the recent federal restrictions on the prescribing of amphetamines and some amphetamine-like drugs (see Appendix B.3 *Sources and Distribution of Amphetamines and Amphetamine-Like Drugs*) has likely reduced the availability of pharmaceutical forms of these substances and, consequently, may have reduced the prevalence of this type of use. We are not able to say at this time how these restrictions have changed patterns of stimulant use or whether users are turning increasingly to illicit supplies of these drugs.

The following discussion will review the special problems posed by termination of dependent drug use. Accumulating evidence suggests that drug dependence does not necessarily imply continuous, daily consumption of a substance throughout the lifetime of the user. Indeed, for most so-called addicts, periods of active dependence represent only a fraction of their life-cycle. Although there is a high probability of relapse, heroin dependents usually experience intermittent periods of voluntary and involuntary abstinence.^{117, 185, 269} Alcoholics periodically 'go on the wagon', and many tobacco smokers make repeated attempts to rid themselves of their dependence on nicotine. In the following pages we discuss the factors which affect these cycles of abstinence and relapse.

There is little published data on the abstinence and relapse patterns of those who become dependent on oral amphetamines, barbiturates, tranquilizers or other sedative-hypnotics, and thus lengthy discussion of factors affecting

termination of use is impossible. Nonetheless, there are a number of aspects of prescription drug dependence which would appear to encourage rapid cessation and discourage relapse. Most of these cases originate from legitimate medical practice, and it is reasonable to assume that medical intervention may occur at an early stage. Unlike reformed alcoholics or tobacco smokers, former users of barbiturates or 'diet pills' are unlikely to be in continual interaction with current users and thus will have fewer temptations to relapse. Barbiturate dependence is often associated with heavy alcohol use, and although this complicates treatment of the condition, the pharmacological similarities of these drugs allow for a transfer of dependence. Unlike heroin or methamphetamine dependents whose lives have been dominated by drug-related activities, those dependent on prescription drugs, like the medical professional dependent on opiate narcotics, may have families or careers to turn to and need not radically change their life style to maintain abstinence. These conditions suggest that dependence on prescription substances may be less unremitting than other dependencies, although there are no available studies which test this hypothesis. Indeed, there is very little published data on termination of prescription drug dependence.

The life style of the 'speed freak' is so physically and psychologically demanding that few remain in the speed community for more than a couple of years. A few speeders learn to 'maintain', continuing to use at levels that do not interfere radically with their day-to-day activities, while getting enough sleep and nutrition to prevent profound physical deterioration, but this career pattern is rare. Other speeders may voluntarily withdraw from the life of intravenous amphetamine use, and a few are rescued by friends or relatives. For most, however, there is no place to withdraw to, and their eventual termination of speed use is dependent on their arrest or hospitalization (for a variety of ailments including malnutrition, psychosis, and hepatitis), or a change to the intravenous use of opiate narcotics or barbiturates as a drug of choice. The use of these depressants usually begins as a form of self-medication to counteract the depression and anxiety of the 'crash' at the conclusion of a prolonged speed 'run'. Some users alternate between stimulants and depressants for extended periods of time, and some of these eventually become dependent on heroin or methadone, or, in rare cases, barbiturates.

Most research on termination of drug dependence has concentrated on alcohol and opiate narcotics. We will therefore base the discussion which follows on the data drawn from these studies and insert comments on other dependence-producing drugs only where reliable information is available.

It is generally believed that it takes 10 to 20 years of drinking to become an alcoholic.¹²⁵ By the time an individual recognizes that he must change this pattern or suffer progressive disorganization and debilitation, morning drinking has usually begun. Upon arising, the alcoholic drinks to relieve his hangover, continues to drink during the day to ward off shaking hands and other withdrawal symptoms and lives in fear of being unable to maintain a readily

available supply of the drug.¹⁶³ A major portion of the alcoholic's life is divided between the consumption of alcohol and periods of sobriety which terminate in yet another binge of drinking. Almost all conditions and activities of daily life have been associated with drinking and it is thus very difficult to maintain stable abstinence in the face of numerous drinking-associated everyday events and activities.^{60, 61} This 'habit' component of alcoholism, which is independent of the specific psychological or physical effects of the drug, is present in all forms of drug dependence.

Tobacco smoking is also integrally bound to most daily activities. Abstinent smokers often discover that they are tempted to take up the drug again at social gatherings, at times of stress, after a meal or on other occasions when a certain activity elicits the memory of and desire to smoke. Some ex-smokers claim to be particularly susceptible to relapse when they drink alcohol.

The 'habit' component of heroin dependence is particularly strong. Even after long periods of abstinence, actual physiological craving may reappear.²⁵⁵ The smell of a burning match, which is associated with 'cooking up' an injection, or simply talking about drugs may elicit craving and even physiological withdrawal symptoms.^{155, 268} Stevenson and his associates discovered that for some British Columbia ex-users, a return to Vancouver or a familiar neighbourhood where heroin is sold can spontaneously produce these symptoms.²⁵³

For the 'hard core' heroin or chronic speed user, drug-taking is not only associated with a variety of states of mind, people, places and sensations as it is with alcohol and tobacco dependents, but it is also an important motivating force in the majority of his daily activities. When abstinent, he no longer must 'hustle' for money to buy drugs and many of his normal day-to-day activities are no longer necessary. Thus simply finding meaningful activities to fill up the day becomes an important aspect of sustained or successful abstinence. Although all persons who have withdrawn from a drug on which they were dependent must build up a 'tolerance for abstinence' just as they built up a tolerance to the drug and the concomitant life of dependence,^{4, 208} for heroin and speed users, especially, abstinence demands that a multitude of habits other than drug-taking must be broken.

It has been suggested that under some conditions it may be less difficult for the heroin dependent to discontinue the use of opiate narcotics than for the alcoholic to stop drinking.²⁵³ Alcohol is legally available and used freely in most social environments and the ex-alcoholic will be exposed to drinkers or drinking situations wherever he goes. The opiate narcotic or methamphetamine dependent, on the other hand, has the possibility of taking a 'geographical cure', by relocating to an area where these drugs are not available or where he has no connections to purchase them. In British Columbia, for example, many heroin users have sought jobs in logging, mining or other occupations in remote areas.¹¹⁷ This alternative may have become less pos-

sible as the availability of heroin has spread from Canada's larger metropolitan areas to smaller cities and towns.

Sustained abstinence is encouraged by reducing contact with those who are still using drugs. Thus, for the ex-alcoholic, avoiding his old 'drinking buddies' contributes significantly to continued sobriety. It has often been said that association with users is one of the most important factors in relapse into opiate dependence.¹⁹² In order to avoid the temptation to use once more, those attempting to stay away from heroin—or speed—must no longer communicate with many former associates and, in some cases, life-long friends. New relationships must be established with 'straight' people, many of whom, if not scornful of heroin or speed users, may be insensitive to the problems they face.²⁵⁵

The ability to find satisfactory employment seems to discourage relapse to dependent drug use.^{31, 252, 268} However, many 'ex-addicts' have severe impediments to successfully competing in the job market. For example, heroin use often begins during adolescence when the individual has not yet established stable social or economic relationships. In many cases, early termination of schooling and delinquent behaviour precedes drug use, thus delimiting future occupational opportunities. Once heroin dependence develops, the individual will begin to devote his energies to obtaining increasing amounts of money to support his habit, avoiding the police, and other activities which preclude working toward traditional goals through the educational and occupational structures. After years of 'hustling', it is understandable that many heroin dependents have few skills and little experience which could lead to lucrative or interesting legitimate employment.

Those who do manage to obtain and hold a regular job have a better chance of leaving the life of heroin behind.*¹⁰ This factor seems to be most important for male heroin users who do not have the socially acceptable alternative of becoming a 'housewife', and must therefore find their 'ex-addict' identity in some sort of activity outside the household. But in addition to the problems posed by insufficient work records and low academic achievement, many former opiate dependents find prospective employers unwilling to hire people with criminal records, especially ex-heroin users.²⁵² Many alcoholics, on the other hand, manage to maintain some form of stable career pattern in spite of their drug use and may, indeed, be impelled into treatment by concerned employers. Those whose work record is poor, however, will find difficulty in obtaining a job which is rewarding enough to help keep them away from alcohol. Unlike heroin users, however, they are unlikely to have the additional obstacle of a criminal record to impede their chances.

The patterns of drug use of a wife or husband and overall marital or familial stability play a role in encouraging abstinence. If both partners in a marriage are alcoholics or heavy drinkers, the prognosis for successful ab-

* The prognosis for sustained abstinence from heroin is generally better for people who become involved with heroin after the age of 25, and undoubtedly the intervening variable in many of these cases is some sort of stable employment prior to becoming dependent.²⁹⁷

stinence is poor as termination of use depends on their mutual efforts to attain sobriety. Heroin dependents often marry or live in common-law relationships with one another, and the same kind of co-operation is required to ensure that relapse will not occur. Permanent abstinence from heroin use sometimes stems from establishing a meaningful relationship with a non-user, although relapse may come later if the liaison fails.

The family of the alcoholic plays a significant role in either helping him to stay sober or propelling him into further drinking bouts. In recent years, agencies dealing with the rehabilitation of the alcoholic have come to realize that treatment is most effective when the family is involved.^{123, 206} After years of drinking and unsuccessful attempts to stay sober, the alcoholic may find that his family, who learned to function without him and not to count on his participation in family affairs, may be unable to reinstate him in the household and trust him with important responsibilities.¹²⁴ Successful abstinence may hinge on the ability of the family to "forgive and forget" and, thereby, encourage satisfactory domestic reorganization.

Periods of abstinence from heroin use may be prompted by feelings of responsibility to family members, especially children.¹¹² Similar sentiments may also precipitate attempts to quit smoking, particularly if a parent believes in the dangers of tobacco use and in the possibility that his children may follow his example.

Speed freaks are usually unmarried and rarely have children, but their parental family, if intact and willing to offer supportive assistance, can play a significant role in helping the speeder to remain abstinent. Unfortunately, many speeders come from broken homes and few express sufficiently positive attitudes toward or trust in their families to indicate a willingness to return to their parental homes.

A rewarding home and family life, the establishment of meaningful interpersonal relationships with non-users, and finding satisfactory employment are possible alternatives to a life of drug dependence; but some users turn to a pharmacological substitute. Alcoholics may switch to barbiturates or, conversely, barbiturate dependents may drink heavily when they lose access to their prescription drugs.³³ Barbiturates may be used, alone or with alcohol, by abstinent heroin users, although they are usually considered to be poor substitutes.^{70, 109} Many former heroin users drink alcohol to excess,* especially during the first year of abstinence, and a large proportion become alcoholic.^{232, 253, 267}

In some cases, abstinence will be initiated or sustained for personal reasons or because of chance factors. In one case, a fifty-pound weight gain was the reason given for not returning to heroin.²⁶³ Another individual was motivated to stop after his daughter was killed in a fire which he accidentally started while under the influence of heroin.²³² For others, a number of ex-

* O'Donnell reports one case of successful heroin abstinence which led to compulsive eating.¹⁹⁴ Some people who try to quit smoking also complain of increased food consumption and weight gain.

traneous events, such as blindness and arthritic paralysis, prevented continuation of a career of opiate use.³³

There are several factors which have been hypothesized to affect abstinence rates among heroin users that have not been clearly borne out in research. The severity of the habit, ethnic background, criminal involvement, alcoholism and family histories of dependence have not been found to be related to successful abstinence.^{149, 252, 263}

In recent years, especially since the use of methadone maintenance therapy has become popular, a number of heroin treatment facilities, using a variety of modalities, have become available in Canada (see *Treatment Report*). Heroin users may voluntarily apply for treatment for a variety of reasons, although what they expect of the agency may be quite different from what the agency expects to do for them.⁷⁹ When the price of heroin on the street rises during periodic shortages, users may apply for withdrawal treatment or methadone maintenance, in order to avoid 'cold turkey' withdrawal, until favourable market conditions are re-established. Those whose hustling skills are minimal are most likely to respond to a 'street panic' in this way. Others may apply for treatment because of pressure from family or friends, with no real intention of becoming permanently abstinent. Some patients appear for methadone maintenance in the hopes that methadone will enable them to use less heroin and therefore reduce the cost of their drug use. Similarly, some heroin users ask to be withdrawn, not with the intention of remaining abstinent, but in order to reduce the *per diem* cost of their habits when they return to the street. Because of this disparity between the goals of treatment agencies and the intentions or expectations of the users themselves, some observers have recommended that patients should play an active role in determining the goals of treatment.⁷⁹

It appears that the various alcoholism treatment modalities and services are differentially available to alcohol dependents according to their wealth and position as well as the degree to which alcohol has disrupted their lives. The indigent 'skid row bum' is likely to become caught up in 'the revolving door syndrome' involving periodic arrests and incarcerations (see *Treatment Report*). Although he may be contacted by social workers or religious organizations and channelled into some form of treatment, his life alternatives are usually few and, seeing little to gain from continued sobriety, he is likely to return to his old environment and drinking patterns.

More financially fortunate alcoholics, on the other hand, are likely to be impelled into treatment by impending family or occupational disorganization. The lower- or middle-class drinker may turn to the well-publicized Alcoholics Anonymous or other foundations or public agencies which can offer inexpensive treatment. The well-to-do alcoholic, like the medical professional who becomes dependent on opiate narcotics, may receive treatment in an expensive, but discrete, private hospital or clinic. Industries are becoming increasingly aware of alcohol problems among their employees, and a number of programs have been established to attempt to help the alcoholic worker.

Although most tobacco smokers will make an attempt to stop on their own, perhaps adopting one of a number of popular 'systems' to reduce or terminate their consumption, in recent years smoking control clinics have been established to treat tobacco dependence.⁵ Statistics on abstinence and relapse patterns after such treatment are scanty, but it is evident that, like alcohol and heroin dependence, a pattern of heavy tobacco use is difficult to break and relapse may occur even after years of successful abstinence.

Insofar as the correctional system has a 'rehabilitative' component in that it demands abstinence from most drugs,* incarceration can be seen as a form of involuntary treatment. Among alcohol dependents, the 'skid row bum' is most likely to be arrested and jailed for at least as long as it takes him to 'dry out'. More financially fortunate alcoholics are unlikely to come to the attention of law enforcement officers unless arrested for public drunkenness, violent acts under the influence of alcohol, driving violations or other alcohol-related offences. As these offences are also committed by non-alcoholic drinkers, they rarely lead directly to any form of alcoholism treatment.

Most daily heroin users, on the other hand, have a high likelihood of being arrested—either for drug-related activities or offences committed in order to obtain money to buy heroin. Multiple convictions and prison terms are often expected by those deeply involved in the life of illicit opiate use, and jail is considered by many to be a 'part of living', or a 'lousy vacation place from your habit'.^{201, 232, 255} One would expect, therefore, that there is a better opportunity for therapeutic intervention in the institutional setting for heroin users than for those dependent on other substances, if indeed, effective treatment programs could be developed within that setting.

In the past, heroin users did not usually receive any special treatment in North American prison systems. However, in recent years, specific treatment programs for opiate dependents have been instituted in penal settings in both the United States and Canada. These programs are discussed elsewhere in this report (see Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada* and Appendix L *Civil Commitment in California*).

An analysis of follow-up studies of drug dependents suggests that the proportion of people who are 'cured' and achieve a stable drug-free state after treatment or prison may not be much different from the proportion of individuals who become abstinent without professional or paraprofessional assistance, that is, those who 'mature out' on their own. In a ten-year follow-up study of heroin dependents who were incarcerated in Oakalla prison in British Columbia, it was discovered that only five to eight per cent of those who had made contact with the Narcotic Addiction Foundation in Vancouver were presumed to be abstinent, whereas 34 per cent of those with no contact

* Since tobacco is the only drug sanctioned for non-medical use in prisons and is thus an important form of currency as well as a diversion from the prison routine, it would appear that, if anything, incarceration encourages increased use of nicotine.

had achieved this end.^{211, 213} This does not necessarily mean that the agency itself encouraged relapse, for those who did not appear for treatment, although they were similar to those who did on a number of significant variables, may well have been more marginally dependent or less involved in opiate narcotics use.

In some cases, it appears that abstinence becomes easier to sustain as a dependent person grows older. This process is usually referred to as 'maturing out', and although the concept was originally developed to describe cessation of opiate dependence, it has since been applied to other kinds of drug use. While success rates of tobacco-smoking clinics seem to be around 20 per cent, probably 15 per cent of regular smokers, including those not as highly motivated to quit as clinic patients, eventually stop using without treatment.²²⁴ Accumulating evidence suggests that alcoholism may be a self-limiting condition for some proportion of alcoholics and reduced intake, a change to non-problem patterns of use or total abstinence may occur without benefit of formal treatment in up to 25 per cent of the using population.^{38, 178, 214}

The concept of maturing out of heroin dependence, although previously postulated by Scher,²³² was popularized by Winick²⁷⁶ who concluded from his analysis of the records of the United States Federal Bureau of Narcotics (now the Bureau of Narcotics and Dangerous Drugs) that heroin dependence was a self-limiting process for perhaps two-thirds of the dependent population. There are a great number of problems with Winick's study, most of which centre around the U.S. agency's tabulating procedures.* Some of the persons that Winick assumed to have matured out may have been dead or in prison; others may have become 'hidden addicts' insofar as they acquired the skill or resources to avoid encounters with law enforcement agencies. Henderson suggests that Winick's sample may not have been representative of even the *known* heroin-using population and that a significant proportion may have been only marginally dependent.¹¹⁷

Although Winick's data do not satisfactorily support his theory,^{268, 269} maturing out does occur in a proportion of cases according to other studies. It appears that age is correlated with the frequency and duration of abstinence periods among heroin dependents,^{77, 122, 213, 264} although Waldorf suggests that the number of years of heroin use is a stronger predictor of long-term voluntary abstinence than is age.^{† 268, 269} Vaillant found two out of five subjects in their forties to have accomplished stable abstinence, although a similar proportion were dead or institutionalized.²⁶⁵ Similarly, there is a higher probability that tobacco smokers over 30 will be successful in abstaining from

* At the time of Winick's study, the Bureau of Narcotics and Dangerous Drugs had not described its data collection procedures in sufficient detail to evaluate the accuracy of its figures. Apparently no uniform instructions were given to the reporting agencies, and Lindesmith, after analysing the Bureau's register, concluded that the enterprise as a whole appeared to be more of a public relations effort than a serious attempt at enumeration.¹⁶⁰

† Other studies, however, do not support this contention.²⁶³

this drug, and this probability rises with increasing age. The average daily consumption of cigarettes tends to decline in middle age.^{65, 224} Cahalan's follow-up of a national sample of U.S. drinkers reveals that drinking problems decreased with age, with a sharp drop at the age of 50 and another after age 70 for men. He found few women with drinking problems after the age of 50.³⁸

'Spontaneous' recovery from problem levels of alcohol use is most likely to occur when the drinker becomes fully aware of the extent to which alcohol is causing progressive dissolution in his life situation.¹¹⁹ Alcoholics are said to reach their lowest point in their own eyes as well as in the opinion of their friends and family in their late thirties.⁶² Cahalan and his associates concluded that lower levels of drinking among older people are probably attributable to voluntary cessation or decrease in alcohol consumption rather than generational or cohort differences in alcohol use.³⁹

Although tobacco smoking has no effects comparable to alcohol on the life style and self-conception of the user, it is reasonable to assume that fear of the harmful physical effects of tobacco use, particularly on a body weakened by advancing age, must play some role in the decision to terminate use, particularly if cessation of tobacco use has been recommended by a physician.

Although there are no systematic data on the cessation of chronic methamphetamine use, it appears that many speed freaks voluntarily refrain from further intravenous consumption of this drug after a year or two of sustained use. In many cases, the physical and psychological demands of the drug, coupled with increasing reflection on these problems and the viability of alternative life styles, are responsible for the decision to abstain.¹⁰³ However, the relative newness of this phenomenon renders it difficult to generalize about the reasons for cessation of speed use or the chances of successful abstinence.

There is no question that, for some, a life style of heroin dependence becomes unbearable after a period of time, especially among those whose ability to support their habits has declined to such a point that even other users no longer have respect for them.²⁶⁹ Women tend to disappear from the known dependent population around the time that a career as a prostitute would be coming to an end, that is to say, in their late thirties and early forties.^{112, 117} That the way of life of the heroin user on the street, in jails and in treatment facilities should become prohibitively demanding in later years is not surprising; what is more remarkable is that some individuals manage to survive and stay actively dependent, even after decades of heroin dependence.

It is evident that there are a number of variables which affect abstinence and relapse patterns. 'Spontaneous' loss of craving for a drug, although it may conceivably occur in some cases, is probably mediated through one or more of the economic and social conditions we have described above. Maturing out is most often a complex phenomenon and should be understood as such. Abstinence, even for prolonged periods, usually does not imply loss of desire

for the drug of dependence, and craving often continues for the lifetime of those who are ostensibly 'cured' of their dependence.*³³

Termination of dependent alcohol, methamphetamine, or heroin use usually represents a desire to seek out a new value system and a different way of life. As Vaillant suggests, relapse to heroin use may be more due to a poverty of life alternatives than to the extent to which the drug may appear to have answered the needs of the individual.²⁶⁷ The struggle against relapse begins immediately after detoxification when the individual begins his attempt to become an 'ex-' or 'non-addict', and to re-order his life style and his relations with others.

The response of relatives, friends and employers to those who are trying to stop using dependence-producing drugs is crucial, not only to their success in this endeavour, but also to the likelihood that they will be able to take on the identity of a 'normal' person. Heroin relapse often occurs when obstacles to this process necessitate a re-definition of self as a 'junkie'.²⁰⁸ Similarly, the reformed alcoholic, although not faced with the additional problem of becoming an 'ex-criminal' as well as an 'ex-addict', must constantly reaffirm his self-image as a responsible and self-controlled abstainer.†

Life is bitter and the prognosis is poor for most heroin dependents and alcoholics. Although the daily life of tobacco smokers is not radically affected by their use of nicotine, it may well be shortened, and their attempts to cast off this dependence do not appear to have met with dramatic rates of success. However, the termination of non-dependent use or the use of non-dependency-producing drugs does not engender the host of problems faced by chronic users of opiates, alcohol, tobacco, or methamphetamine, and, consequently, is much easier to accomplish.

* Some drug dependents do not achieve permanent abstinence until medical complications or death interrupt their drug-using careers. The mechanisms by which this occurs are discussed in detail in another appendix (see Appendix A *The Drugs and Their Effects*).

† Ex-smokers are often accused of over-enthusiasm in this regard, regaling their friends—especially those who have been less successful in their attempts to quit—with detailed analyses of their smoking careers and the precise period of time which has elapsed since their last cigarette.

ANNEX 1

EXTENT OF MULTIPLE DRUG USE

Multiple drug use is the rule rather than the exception among those who use drugs, whether their use is medical or non-medical, licit or illicit. Data drawn from Commission surveys in the spring of 1970 provide an overview of drug use in the Canadian population aged 12 and over in terms of seven *classes* of drugs: hashish and marijuana are combined as cannabis; 'pep pills' and 'diet pills' form a second group; 'sedatives', tranquilizers and 'sleeping pills' form a third group; LSD and 'other hallucinogens' form a fourth group; and tobacco, alcohol, and solvents are each treated as a distinct class.^{142, 143, 144} The Commission surveys did not gather any data on the use of opiate narcotic drugs, and consequently, there is no 'opiates' category in this classification. Our data do not address themselves directly to the hypothesis of 'progression' from one drug to another. Rather, they provide information regarding the context of what may be termed normal multiple drug use in the Canadian population.

A major difficulty with most of the data published on multiple drug use is that frequency of use is not taken into account. The regular user of several drugs is often lumped together with, for example, someone who has used the same substances only once. The number of respondents in the Commission surveys does not allow a particularly fine analysis of frequency of use. We have, however, distinguished use of a substance *ever* from use *once a month or more in the last six months*. For most substances, this latter frequency cannot be called 'frequent use'. For example, someone who uses tobacco, alcohol and cannabis, but each only once a month, cannot be described as a heavy user of any of these substances.

Our data involve six sets of patterns of multiple drug use: the two sets of patterns given by two different definitions of multiple drug use ('ever used' and used 'once a month or more in the last six months') for each of three populations (adults, college and university students, and high school students). Table C.8 shows the number of *classes* of substances used in each of these six sets. Tables C.9 to C.11 show the most common patterns of multiple drug use, and Tables C.12 to C.14 show the correlations between pairs of *classes* of substances.

The only general statement that can be made about these data is that the choice of combinations of substances is not at all random. There are 128 possible patterns of multiple drug use for the seven *classes* of substances. If respondents chose among these seven *classes* on a random basis, we would expect each pattern to represent about ten respondents in the high school

and university samples and about 22 respondents in the adult sample. In fact, only one out of ten patterns contains at least these numbers of respondents. In all cases, the four most common of the 128 patterns account for approximately 50 per cent or more of the respondents in each sample, involving no more than three of the seven classes of drugs. In no case does it require more than the top 12 of the 128 patterns (involving no more than five of the drug classes) to cover 80 per cent of the sample. Multiple drug use, according to either level-of-use definition, and in any of the three populations, can thus be largely accounted for in terms of a relatively restricted number of patterns of multiple drug use. But the particular patterns that occur, and the proportions of the population that they cover, differ from sample to sample, and, equally importantly, differ in terms of whether one is using the 'ever used' or used 'once a month or more in the last six months' level-of-use definitions.

We are dealing with seven classes of drugs. How many are used by our respondents? Not surprisingly there is a sharp difference in all three samples between the number of classes of drugs ever used, and the number used on the average at least once a month in the last six months. Table C.8 shows that in the high school sample, 93 per cent of the respondents have never used more than three types of drugs, and 89 per cent only one type or none at all on a more regular basis. In the college and university and national adult samples, the numbers of drug classes used by 90 per cent of the sample or more are four 'ever' and two on a more regular basis.

These data indicate the importance of distinguishing levels-of-use. Even our relatively weak measure of levels-of-use halves the number of respondents who are defined as multiple drug users when we move from those who have ever used any of these drug classes to those who have used the classes once a month or more in the last six months.

The most notable features of the national adult sample (see Table C.9), in terms of use once a month or more in the last six months, are: the primary position of 'no use' of any of the seven classes of substances (30 per cent of the sample); the secondary position of alcohol and tobacco, alone or in combination (a total of 48 per cent of the sample); followed by sedatives, tranquilizers or sleeping pills alone or together with alcohol or tobacco (16 per cent of the sample); followed by pep pills or diet pills, alone or together with sedatives, tranquilizers or sleeping pills, alcohol, or tobacco (three per cent of the sample).

Patterns of multiple drug use in the college and university sample (see Table C.10), with use defined as use once a month or more on the average in the last six months, are similar to those of the national adult sample, with one notable exception. Patterns involving cannabis appear where patterns involving sedatives, tranquilizers or sleeping pills are found in the adult sample. Table C.11 indicates that, in terms of more regular use, high school students are remarkable for their abstemiousness when compared to adults and college and university students. Furthermore, high school students remain

primarily committed to the traditional non-medical drugs of our society, tobacco and alcohol. Only eight per cent of the sample uses any other substance on a relatively frequent basis, medically or non-medically, licitly or illicitly.

The probability of future use of any given drug is greater among persons who have at some time used a drug than among those who have not. This observation is represented statistically by a positive correlation coefficient—a numerical summary measure of the degree to which two quantitative variables are interrelated such that an increase in one variable is associated with a corresponding increase in the other variable. Tables C.12 to C.14 present matrices of point correlations for all possible pairs of drug classes in the three Commission surveys. Most of the pairs of drugs are positively correlated, with the degree of correlation varying from very weak to moderate. The highest correlation is 0.55, that between cannabis use and LSD use in the high school survey (see Table C.14). Correlations of this order, although indicating a strong relationship between two variables, do not suggest that the variables are so closely related as to make it possible to predict an individual's use of one substance on the basis of his use of another substance.

As we move from the high school survey to the college and university and national surveys, we note that corresponding correlation coefficients tend to be lower. High school students are at an age where they are developing adult patterns of drug use, and older students tend to have more experience with a variety of drugs than younger ones. Thus, the variation in age in this high school sample, correlated as it is to the use of most drugs, would account for most of the stronger relationships found in the high school sample than in the other samples.

We note further that correlations tend to be lower when we define drug use as use 'once a month or more in the last six months', rather than 'ever used'. The phenomenon of multiple drug use changes its character when we more strictly define the level-of-use of the substances involved. The relationships among the drugs tend to be diminished since there are proportionately fewer frequent users of any combination of drugs than there are persons who have 'ever used' these combinations. Consequently, it becomes less possible—rather than more possible—to explain the use of one drug in terms of the use of another drug. Hence, correlations that do not consider level-of-use data are not only unsophisticated but, more importantly, can often prove misleading.

The Commission data indicate that multiple-drug use is in fact normal drug use in our society. This observation has also been made by other researchers who have observed that all drug use is related to all other drug use, and that an individual's use of any one psychotropic substances makes more likely his use of any other psychotropic substance.^{28, 82, 190} The values of these correlations, however, are never so strong as to serve as adequate predictors of drug use.

TABLE C.8

NUMBER OF CLASSES OF DRUGS USED BY FREQUENCY OF USE, AND BY SAMPLE, COMMISSION SURVEYS, CANADA, SPRING 1970

Number of Classes*	NATIONAL ADULT SURVEY		COLLEGE AND UNIVERSITY SURVEY		HIGH SCHOOL SURVEY	
	Ever Used	Once a month or more in the last six months	Ever Used	Once a month or more in the last six months	Ever Used	Once a month or more in the last six months
	<i>Percentages</i>					
None.....	14	30	9	29	43	66
One.....	19	34	25	39	25	23
Two.....	31	28	29	25	16	8
Three.....	27	7	20	6	9	2
Four.....	7	1	12	1	4	2
Five.....	1	—	4	†	2	†
Six.....	†	—	1	—	1	—
Seven.....	—	—	†	—	†	—
Total.....	100	100	100	100	100	100
N.....	2749	2749	1213	1213	1213	1213

* Classes: Alcohol; tobacco; marijuana or hashish; sedatives or sleeping pills or tranquilizers; pep pills or diet pills; LSD or other hallucinogens; solvents.

† Less than 0.05 per cent.

TABLE C.9

PATTERNS OF DRUG USE REPRESENTING TEN OR MORE RESPONDENTS, BY FREQUENCY OF USE, COMMISSION NATIONAL ADULT SURVEY, CANADA, SPRING 1970

PATTERN AND FREQUENCY OF USE			
Ever Used		Once a month or more in the last six months	
<i>Pattern*</i>	<i>Per Cent</i>	<i>Pattern*</i>	<i>Per Cent</i>
1. sed, alc, tob.....	20	1. no use.....	30
2. alc, tob.....	16	2. alc, tob.....	20
3. no use.....	14	3. only tob.....	14
4. sed, alc.....	8	4. only alc.....	14
5. only alc.....	7	5. only sed.....	5
6. only sed.....	6	6. sed, alc, tob.....	5
7. ups, sed, alc, tob.....	6	7. sed, tob.....	3
8. only tob.....	5	8. sed, alc.....	3
9. sed, tob.....	4	9. only ups.....	1
10. ups, sed, alc.....	2	10. ups, sed.....	1
11. ups, alc, tob.....	2	11. ups, tob.....	1
12. ups, sed.....	2	12. ups, alc, tob.....	1
13. ups, alc.....	1	13. ups, sed, alc, tob.....	1
14. only ups.....	1	14. ups, sed, alc.....	†
15. ups, sed, tob.....	1	15. ups, sed, tob.....	†
16. can, alc, tob.....	1	16. ups, alc.....	†
17. can, sed, alc, tob.....	1		
18. can, ups, sed, alc, tob.....	1		
19. ups, tob.....	1		
22 remaining patterns.....	2	15 remaining patterns.....	2
Total.....	100	Total.....	100
N.....	2749	N.....	2749

* alc = alcohol; can = marijuana or hashish; sed = sedatives or tranquilizers or sleeping pills; tob = tobacco; ups = pep pills or diet pills; LSD = LSD or other hallucinogens; sol = solvents.
† less than 0.5.

TABLE C.10

PATTERNS OF DRUG USE REPRESENTING TEN OR MORE RESPONDENTS,
BY FREQUENCY OF USE, COMMISSION COLLEGE AND UNIVERSITY SURVEY,
CANADA, SPRING 1970

PATTERN AND FREQUENCY OF USE			
Ever Used		Once a month or more in the last six months	
<i>Pattern*</i>	<i>Per Cent</i>	<i>Pattern*</i>	<i>Per Cent</i>
1. only alc.....	19	1. no use.....	29
2. alc, tob.....	12	2. only alc.....	28
3. sed, alc.....	9	3. alc, tob.....	18
4. no use.....	9	4. only tob.....	8
5. sed, alc, tob.....	7	5. can, tob, alc.....	3
6. can, alc, tob.....	5	6. can, alc.....	3
7. can, sed, alc, tob.....	5	7. sed, tob, alc.....	2
8. can, alc.....	4	8. sed, alc.....	2
9. only tob.....	3	9. only can.....	1
10. can, sed, alc.....	3	10. only sed.....	1
11. only sed.....	3	11. can, tob.....	1
12. ups, sed, alc, tob.....	2		
13. can, LSD, alc.....	2		
14. ups, sed, alc.....	2		
15. ups, alc, tob.....	2		
16. can, LSD, alc, tob.....	2		
17. ups, alc.....	1		
18. can, sed, LSD, alc, tob.....	1		
19. can, ups, sed, alc, tob.....	1		
20. sed, tob.....	1		
21. alc, can, ups.....	1		
24 remaining patterns.....	6	16 remaining patterns.....	4
Total.....	100	Total.....	100
N.....	1213	N.....	1213

* alc = alcohol; can = marijuana or hashish; sed = sedatives or tranquilizers or sleeping pills; tob = tobacco; ups = pep pills or diet pills; LSD = LSD or other hallucinogens; sol = solvents.

TABLE C.11

PATTERNS OF DRUG USE REPRESENTING TEN OR MORE RESPONDENTS,
BY FREQUENCY OF USE, COMMISSION HIGH SCHOOL SURVEY, CANADA, SPRING 1970

PATTERN AND FREQUENCY OF USE			
Ever Used		Once a month or more in the last six months	
<i>Pattern*</i>	<i>Per Cent</i>	<i>Pattern*</i>	<i>Per Cent</i>
1. no use.....	43	1. no use.....	66
2. only tob.....	11	2. only tob.....	16
3. only sed.....	6	3. alc, tob.....	5
4. only alc.....	6	4. only alc.....	4
5. alc, tob.....	6	5. only can.....	1
6. sed, alc, tob.....	3	6. only sed.....	1
7. sed, alc.....	3	7. can, tob.....	1
8. sed, tob.....	2	8. can, alc, tob.....	1
9. can, alc, tob.....	2		
10. can, alc.....	1		
11. can, sed, alc, tob.....	1		
12. ups, sed, alc.....	1		
13. ups, sed, alc, tob.....	1		
54 remaining patterns.....	14	21 remaining patterns.....	5
Total.....	100	Total.....	100
N.....	1213	N.....	1213

* alc = alcohol; can = marijuana or hashish; sed = sedatives or tranquilizers or sleeping pills;
tob = tobacco; ups = pep pills or diet pills; LSD = LSD or other hallucinogens; sol = solvents.

TABLE C.12

POINT CORRELATIONS BETWEEN PAIRS OF SEVEN CLASSES OF DRUGS FOR TWO FREQUENCIES OF USE,
COMMISSION NATIONAL ADULT SURVEY, CANADA, SPRING 1970

	Alcohol	Tobacco	Marijuana or Hashish	LSD*	Pep Pills or Diet Pills	Sedatives or Tranquilizers or Sleeping Pills	Solvents
<i>Ever Used:</i>							
Alcohol.....		0.40	0.09	0.01	0.11	0.18	0.04
Tobacco.....			0.09	0.03	0.05	0.13	0.03
Marijuana or Hashish.....				0.42	0.08	0.01	0.03
LSD*.....					0.06	†	-0.01
Pep Pills or Diet Pills.....						0.16	†
Sedatives or Tranquilizers or Sleeping Pills.....							0.05
<i>Used once a month or more in the last six months:</i>							
Alcohol.....		0.25	0.03	0.01	†	0.05	0.06
Tobacco.....			0.01	0.05	0.01	0.06	0.01
Marijuana or Hashish.....				0.37	0.04	-0.02	-0.01
LSD*.....					-0.01	0.02	†
Pep Pills or Diet Pills.....						0.14	-0.02
Sedatives or Tranquilizers or Sleeping Pills.....							-0.02

* Includes other hallucinogens.

† $r < \pm 0.005$.

TABLE C.13

POINT CORRELATIONS BETWEEN PAIRS OF SEVEN CLASSES OF DRUGS FOR TWO FREQUENCIES OF USE,
COMMISSION COLLEGE AND UNIVERSITY SURVEY, CANADA, SPRING 1970

	Alcohol	Tobacco	Marijuana or Hashish	LSD*	Pep Pills or Diet Pills	Sedatives or Tranquilizers or Sleeping Pills	Solvents
<i>Ever Used:</i>							
Alcohol.....		0.19	0.25	0.12	0.08	0.12	0.05
Tobacco.....			0.22	0.31	0.13	0.10	0.10
Marijuana or Hashish.....				0.45	0.11	0.09	0.12
LSD*.....					0.07	0.02	0.04
Pep Pills or Diet Pills.....						0.17	0.04
Sedatives or Tranquilizers or Sleeping Pills.....							0.01
<i>Used once a month or more in the previous six months:</i>							
Alcohol.....		0.15	0.13	0.05	0.04	0.07	†
Tobacco.....			0.12	0.08	0.05	0.05	†
Marijuana or Hashish.....				0.26	0.03	0.06	†
LSD*.....					0.13	0.10	†
Pep Pills or Diet Pills.....						0.12	†
Sedatives or Tranquilizers or Sleeping Pills.....							†

* Includes other hallucinogens.

† Insufficient variation in one or the other variable.

TABLE C.14

POINT CORRELATIONS BETWEEN PAIRS OF SEVEN CLASSES OF DRUGS FOR TWO FREQUENCIES OF USE,
COMMISSION HIGH SCHOOL SURVEY, CANADA, SPRING 1970

	Alcohol	Tobacco	Marijuana or Hashish	LSD*	Pep Pills or Diet Pills	Sedatives or Tranquilizers or Sleeping Pills	Solvents
<i>Ever Used:</i>							
Alcohol.....		0.33	0.41	0.30	0.21	0.29	0.22
Tobacco.....			0.25	0.14	0.12	0.13	0.13
Marijuana or Hashish.....				0.55	0.19	0.14	0.23
LSD*.....					0.21	0.12	0.18
Pep Pills or Diet Pills.....						0.23	0.07
Sedatives or Tranquilizers or Sleeping Pills.....							0.09
<i>Used once a month or more in the previous six months:</i>							
Alcohol.....		0.27	0.23	0.12	0.10	0.09	†
Tobacco.....			0.18	0.14	0.03	0.05	†
Marijuana or Hashish.....				0.51	0.12	0.11	†
LSD*.....					0.06	0.17	†
Pep Pills or Diet Pills.....						0.14	†
Sedatives or Tranquilizers or Sleeping Pills.....							†

* Includes other hallucinogens.

† Insufficient variation in one or the other variable.

ANNEX 2

"HABITUAL NARCOTICS USERS" KNOWN TO THE BUREAU OF DANGEROUS DRUGS (1972)

The tables in this annex were compiled by the Bureau of Dangerous Drugs of the Health Protection Branch, Department of National Health and Welfare.

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TABLE C.15
KNOWN HABITUAL NARCOTIC DRUG USERS IN CANADA FOR 1972 BY CLASS, PROVINCE AND SEX

Yukon	B.C.		Alta.		Sask.		Man.		Ont.		Que.		N.B.		N.S.		P.E.I.		Nfld.		TOTAL		GRAND TOTAL		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F			
Illicit.....	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958
Licit (Medical).....	—	—	14	14	6	5	2	3	1	2	21	40	12	20	2	2	—	7	—	1	—	1	58	95	153
Professional Persons.....	—	—	14	3	3	—	5	2	5	3	31	14	26	11	4	1	4	2	1	—	2	—	95	36	131

I ILLICIT: Includes all cases where we have record of the person since 1963 and where the source was initially illicit. Not all of these persons have been convicted under the Narcotic Control Act.

II LICIT (Medical): This group might be referred to as therapeutic drug users. These are persons who have some medical condition upon which dependence has become superimposed or to persons who became depend-

ent through medical treatment. Few persons in this class have any criminal background. Names are deleted from this group if we have no record from a Narcotic standpoint during the past five years.

III PROFESSIONAL PERSONS: Members of the medical and allied professions. In this group also, names are dropped after a period of five years with no information being received.

TABLE C.16
KNOWN HABITUAL ILLICIT NARCOTIC DRUG USERS 1972 BY SEX AND AGE GROUPS

Years	Yukon		B.C.		Alta.		Sask.		Man.		Ont.		Que.		N.B.		N.S.		P.E.I.		Nfld.		TOTAL		GRAND TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Under 20.....	—	—	223	164	63	25	12	3	18	10	86	28	30	13	—	—	6	1	—	—	—	—	438	244	682
20-24.....	1	—	1,010	357	172	76	30	10	76	22	323	108	218	66	2	—	17	4	—	—	1	—	1,850	643	2,498
25-29.....	—	1	648	275	73	20	24	6	35	5	146	102	61	20	1	—	3	2	—	—	1	—	992	431	1,423
30-34.....	—	—	471	225	43	10	13	1	14	2	126	99	16	7	—	—	4	—	—	—	—	—	687	344	1,031
35-39.....	—	—	379	115	24	9	8	1	9	—	115	77	21	8	1	—	—	—	—	—	—	—	557	210	767
40-49.....	—	—	464	116	30	8	9	6	15	4	175	68	28	8	1	—	—	—	—	—	—	—	722	210	932
50-59.....	—	—	195	37	8	1	8	—	5	1	80	17	8	2	—	1	1	—	1	—	—	—	306	59	365
60-69.....	—	—	99	14	4	—	1	—	5	1	42	4	5	1	—	—	—	—	—	—	—	—	156	20	176
70 and over.....	—	—	22	1	—	—	—	—	2	—	6	1	6	—	—	—	—	—	—	—	—	—	36	2	38
Not known.....	—	—	518	163	42	30	27	21	23	6	80	37	77	21	1	—	3	—	2	—	—	—	773	278	1,051
TOTAL.....	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958

Note: Age is taken in 1972, and not when first encountered.
Some groups are in 10 year intervals.

TABLE C.17
 KNOWN HABITUAL ILLICIT NARCOTIC DRUG USERS 1972
 Under 18 years of age

Age	B.C.		Alta.		Sask.		Man.		Ont.		Que.		N.B.		N.S.		P.E.I.		Nfld.		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
17.....	28	26	3	—	4	1	—	4	9	3	1	1	—	—	—	—	—	—	—	—	45	35
16.....	5	18	6	1	—	1	—	—	5	—	1	—	—	—	—	1	—	—	—	—	17	24
15.....	2	4	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	3	4
14.....	1	1	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	2	2
13.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	0
TOTAL	37	49	9	1	4	2	1	4	15	3	2	2	—	—	—	1	—	—	—	—	68	65

TABLE C.18

KNOWN HABITUAL ILLICIT NARCOTIC DRUG USERS 1972 BY NAME AND SOURCE OF INFORMATION

Narcotic Drugs	Yukon		B.C.		Alta.		Sask.		Man.		Ont.		Que.		N.B.		N.S.		P.E.I.		Nfld.		TOTAL		GRAND TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F		
Heroin.....	—	1	3,563	1,297	358	151	92	29	179	48	990	460	397	113	2	—	29	6	2	—	2	—	5,614	2,105	7,719	
Opiates.....	—	—	48	6	24	5	11	3	8	—	64	18	17	11	4	1	3	—	—	—	—	—	179	44	223	
Cocaine.....	1	—	26	10	21	3	—	—	2	1	40	8	7	1	—	—	2	—	—	—	—	—	99	23	122	
Synthetics.....	—	—	265	101	47	19	28	15	7	1	82	30	45	17	—	—	—	1	1	—	—	—	475	184	659	
Not known.....	—	—	127	53	9	1	1	1	6	1	3	25	4	4	—	—	—	—	—	—	—	—	150	85	235	
TOTAL.....	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958	
Source																										
Licit.....	—	—	595	65	23	9	14	12	2	1	26	13	17	10	3	1	—	—	—	—	—	—	680	111	791	
Illicit.....	1	1	3,384	1,397	436	170	118	36	196	49	1,153	524	453	136	3	—	34	7	3	—	2	—	5,783	2,320	8,103	
Not known.....	—	—	50	5	—	—	—	—	4	1	—	4	—	—	—	—	—	—	—	—	—	—	54	10	64	
TOTAL.....	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958	
Source of information																										
Pharmacy																										
Sales reports....	—	—	529	223	70	36	22	19	6	3	134	38	162	55	—	—	16	5	1	—	—	—	940	379	1,319	
Police reports..	1	1	2,585	966	339	112	87	21	158	37	930	442	250	72	1	1	15	—	2	—	—	—	4,368	1,652	6,020	
Other means....	—	—	915	278	50	31	23	8	38	11	115	61	58	19	5	—	3	2	—	—	2	—	1,209	410	1,619	
TOTAL.....	1	1	4,029	1,467	459	179	132	48	202	51	1,179	541	470	146	6	1	34	7	3	—	2	—	6,517	2,441	8,958	

References and Selected Bibliography

1. Addiction Research Foundation. *Appendices to the twentieth annual report (1970)*. Toronto: Addiction Research Foundation, 1971.
2. Addiction Research Foundation. *Facts about solvents*. Toronto: Addiction Research Foundation, 1969.
3. Ahmed, S. N. *Patterns of juvenile drug use*. (Doctoral dissertation, University of California, Berkeley) Ann Arbor, Mich.: University Microfilms, 1967. No. 68-5672.
4. Alksne, H., Lieberman, H., & Brill, L. A. A conceptual model of the life cycle of addiction. *International Journal of the Addictions*, 1967, 2: 221-240.
5. Andrews, D. A., Wake, F. R., & MacLean, J. A working document on smoking. Unpublished Commission research paper, 1971.
6. Annis, H. M., Klug, R., & Blackwell, D. Drug use among high school students in Timmins. Unpublished manuscript, Project J-183, Substudy 1-38, 39 & B1-71, Addiction Research Foundation, Toronto, 1971.
7. Baden, M. M. Methadone related deaths in New York City. *International Journal of the Addictions*, 1970, 5: 489-498.
8. Ball, J. C. Marijuana smoking and the onset of heroin use. In J. O. Cole & J. R. Wittenborn. *Drug abuses: Social and psychopharmacological aspects*. Springfield, Ill.: C. C. Thomas, 1967. Pp. 117-128.
9. Ball, J. C., Chambers, C. D., & Ball, M. J. The association of marihuana smoking with opiate addiction in the United States. *Journal of Criminal Law, Criminology and Police Science*, 1968, 59: 171-182.
10. Ball, J. C., & Snarr, R. W. A test of the maturation hypothesis with respect to opiate addiction. *Bulletin on Narcotics*, 1969, 21(4): 9-13.
11. Barker, G. H., & Adams, W. T. Glue sniffers. *Sociology & Social Research*, 1962-63, 47: 298-310.
12. Bartlett, S., & Tapia, F. Glue and gasoline 'sniffing', the addiction of youth. *Mis-souri Medicine*, 1966, 63: 270-272.
13. Becker, H. S. Becoming a marihuana user. *American Journal of Sociology*, 1953, 59: 235-242.
14. Becker, H. S. Marihuana use and social control. *Social Problems*, 1955, 3: 35-44.
15. Becker, H. S. *Outsiders: Studies in the sociology of deviance*. Glencoe, N.Y.: Free Press, 1963.
16. Bender, L. Drug addiction in adolescence. *Comprehensive Psychiatry*, 1963, 4: 181-194.
17. Bilodeau, L. *La consommation de drogues chez les étudiants du secondaire et du collégial de l'île de Montréal en 1969 et en 1971*. Québec: Office de la Prévention et du Traitement de l'Alcoolisme et des Autres Toxicomanies, 1971.
18. Blackwell, J. C. The costs of heroin-related thefts. Unpublished Commission research paper, 1972.
19. Blackwell, J. C. Notes on "contagion theory". Unpublished Commission research paper, 1972.
20. Blackwell, J. C. Opiate narcotics: Patterns of use. Unpublished Commission research paper, 1972.

21. Blaine, J. D., Lieberman, C. M., & Hirsh, J. Preliminary observations on patterns of drug consumption among medical students. *International Journal of the Addictions*, 1968, 3: 389-396.
22. Bloomquist, E. R. *Marijuana*. Beverly Hills, Calif.: Glencoe, 1968.
23. Blum, R. H. Mind-altering drugs and dangerous behavior. In United States, The President's Commission on Law Enforcement and Administration of Justice, *Task force report: Narcotics and drug abuse*. Appendix A-2. Washington, D.C.: U.S. Government Printing Office, 1967.
24. Blum, R. H. Statement (1968) cited without reference by United States, Department of Health, Education and Welfare, National Institute of Mental Health, *Marihuana and health*. Washington, D.C.: U.S. Government Printing Office, 1971. P. 156.
25. Blum, R. H., & Associates. *Students and drugs*. San Francisco: Jossey-Bass, 1969.
26. Blum, R. H., & Associates. *Utopiates: Use and users of LSD-25*. New York: Atherton, 1964.
27. Blum, R. H., Aron, J., Tutko, T., Feinglass, S., & Fort, J. Drugs and high school students. In R. H. Blum and Associates, *Students and drugs*. San Francisco: Jossey-Bass, 1969. Pp. 321-348.
28. Blum, R. H., Braunstein, L., & Stone, A. Normal drug use: An exploratory study of patterns and correlates. In J. I. Cole & J. R. Wittenborn (Eds.), *Drug abuse: Social and psychopharmacological aspects*. Springfield, Ill.: C. C. Thomas, 1969. Pp. 59-92.
29. Blumer, H., Sutter, A., Ahmed, S., & Smith, R. ADD Center project: Final report—The world of youthful drug use. Unpublished manuscript, School of Criminology, University of California, Berkeley, Calif., 1967.
30. Bogg, R. A., Smith, R. G., & Russell, S. D. Some sociological and social-psychological correlates of marihuana and alcohol use by Michigan high school students. Paper presented at the Ohio Valley Sociological Society and the Midwest Sociological Society Joint Meeting, Indianapolis, Ind., May 2, 1969.
31. Bowden, C. L., & Langenauer, B. J. Success and failure in the NARA Addiction Program. *American Journal of Psychiatry*, 1972, 128: 853-856.
32. Brady, J. F., Ross, D. R., Grindstaff, C. F., & Ryan, E. F. Non-medical drug use among students at the University of Western Ontario. Brief presented to the Commission at London, May 22, 1970.
33. Brecher, E. M., & the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine and alcohol*. Boston: Little, Brown, 1972.
34. Bricker, A. G. A short overview and some original research on the drug scene in a Canadian university. Unpublished student essay, University of Alberta, Edmonton, 1970.
35. Bromberg, W., & Rodgers, T. C. Marihuana and aggressive crime. *American Journal of Psychiatry*, 1945, 102: 825-827.
36. Brown, B. S., Gauvey, S. K., Meyers, M. B., & Stark, S. D. In their own words: Addicts' reasons for initiating and withdrawing from heroin. *International Journal of the Addictions*, 1971, 6: 635-645.
37. Brozovsky, M., & Winkler, E. G. Glue sniffing in children and adolescents. *New York State Journal of Medicine*, 1965, 65: 1984-1989.
38. Cahalan, D. *Problem drinkers*. San Francisco: Jossey-Bass, 1970.
39. Cahalan, D., Cisin, I. H., & Crossley, H. M. *American drinking practices: A national survey of behavior and attitudes related to alcoholic beverages*. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1969.

40. California, Department of Justice, Division of Law Enforcement, Bureau of Criminal Statistics. *Crime and delinquency in California*. Sacramento, Calif.: Bureau of Criminal Statistics, 1969.
41. California, Department of Justice, Division of Law Enforcement, Bureau of Criminal Statistics. *Follow-up study of 1960 adult drug offenders*. Sacramento, Calif.: Bureau of Criminal Statistics, 1968.
42. Campbell, I. L. Non-medical psychoactive drug use at Bishop's University, 1965-1970. Unpublished paper, Sir George Williams University, Montreal, 1970.
43. Canada, Commission of Inquiry Into the Non-Medical Use of Drugs. *Cannabis*. Ottawa: Information Canada, 1972.
44. Canada, Department of National Health and Welfare. Men kicking the habit but more teenage girls hooked. Press release, Ottawa, June 10, 1971.
45. Canada, Department of National Health and Welfare. Smoking habits of Canadians, 1964: Report of a survey carried out by the Dominion Bureau of Statistics. Unpublished manuscript, Department of National Health and Welfare Information Services, Ottawa, 1965.
46. Canada, Department of National Health and Welfare, Health Protection Branch, Bureau of Dangerous Drugs, Ottawa. Unpublished information provided to the Commission, 1969-1973.
47. Canada, Senate. *Proceedings of the Special Committee on the Traffic in Narcotic Drugs in Canada*. Ottawa: Queen's Printer, 1955.
48. Carey, J. T. *The college drug scene*. Englewood Cliffs, N.J.: Prentice-Hall, 1968.
49. Carey, J. T., & Mandel, J. A San Francisco Bay area "speed" scene. *Journal of Health and Social Behavior*, 1968, 9: 164-174.
50. Caron, F., Dessureault, J., & Hayes, A. Le problème du doping chez les athlètes. Brief presented to the Commission at Trois-Rivières, October 15, 1970.
51. Cattell, R. B. The three basic factor-analytic research designs—Their interrelations and derivatives. *Psychological Bulletin*, 1952, 49: 499-520.
52. Chambers, C. D. *An assessment of drug use in the general population*. New York: New York State Narcotic Addiction Control Commission, 1971.
53. Chambers, C. D. Some epidemiological considerations of onset of opiate use in the United States. Paper presented at the Conference on the Epidemiology of Drug Use, San Juan, Puerto Rico, February 1973.
54. Chapple, P. A. L. Cannabis, a toxic and dangerous substance: A study of eighty takers. *British Journal of Addiction*, 1966, 61: 269-282.
55. Charen, S., & Perleman, L. Personality studies of marijuana addicts. *American Journal of Psychiatry*, 1946, 102: 674-682.
56. Cheek, F. E., Newell, S., & Sarett, M. The down-head behind an up-head—The heroin addict takes LSD. *International Journal of the Addictions*, 1969, 4: 101-119.
57. Chein, I., Gerard, D. L., Lee, R. S., Rosenfeld, E., & Wilner, D. M. *The road to H: Narcotics, delinquency, and social policy*. New York: Basic, 1964.
58. Chein, I., & Rosenfeld, R. Juvenile narcotic use. *Law and Contemporary Problems*, 1957, 22: 52-68.
59. Chertkow, C. LSD in Vancouver: A study of users. Unpublished thesis, University of British Columbia, Vancouver, 1968.
60. Chotlos, J. W., & Dieter, J. B. Psychological consideration in the etiology of alcoholism. In D. J. Pittman (Ed.), *Alcoholism: An interdisciplinary approach*. Springfield, Ill.: C. C. Thomas, 1959.
61. Chotlos, J. W., & Goldstein, G. The alcoholic. *Review of Existential Psychology and Psychiatry*. 1965, 5: 71-83

62. Clinard, M. B. *Sociology of deviant behavior*. (3rd ed.) New York: Holt, Rinehart & Winston, 1968.
63. Cohen, H. Principal conclusions from the report: "Psychology, social psychology and sociology of illicit drug use". *British Journal of Addiction*, 1970, 65: 39-44.
64. Cohen, N., & Klein, D. F. Drug abuse in a young psychiatric population. *American Journal of Orthopsychiatry*, 1970, 40: 448-455.
65. Colburn, H. N. (Director, Use of Tobacco Program, Department of National Health and Welfare, Ottawa) Unpublished information provided to the Commission, February 22, 1973.
66. Colburn, H. N. (Director, Use of Tobacco Program, Department of National Health and Welfare, Ottawa) Unpublished information provided to the Commission, March 7, 1973.
67. Cooperstock, R., & Sims, M. Mood-modifying drugs prescribed in a Canadian city: Hidden problems. *American Journal of Public Health and the Nation's Health*, 1971, 61: 1007-1016.
68. Corliss, L. M. A review of the evidence on glue-sniffing—A persistent problem. *Journal of School Health*, 1965, 35: 442-449.
69. Cox, C., & Smart, R. G. The nature and extent of speed use in North America. *Canadian Medical Association Journal*, 1970, 102: 724-729.
70. Cumberlidge, M. C. The abuse of barbiturates by heroin addicts. *Canadian Medical Association Journal*, 1968, 98: 1045-1049.
71. Dai, B. *Opiate addiction in Chicago*. Shanghai: Commercial Press, 1937.
72. de Alarcon, R. The communicability of drug abuse in adolescence. Unpublished manuscript, Clinical Psychiatry Unit, Graylingwell Hospital, Chichester, Sussex, England, 1971.
73. de Alarcon, R. The spread of heroin abuse in a community. *Bulletin on Narcotics*, 1969, 21(3): 17-22.
74. de Lint, J., & Schmidt, W. The distribution of alcohol consumption in Ontario. *Quarterly Journal of Studies on Alcohol*, 1968, 29: 968.
75. de Lint, J., Schmidt, W., & Pernanen, K. The Ontario drinking survey: A preliminary report. Unpublished manuscript, Project J-204, Substudy 1-10, 4 & 37-70, Addiction Research Foundation, Toronto, 1970.
76. Duster, T. *The legislation of morality: Law, drugs and moral judgement*. New York: Free Press, 1970.
77. Duvall, H. J., Locke, B. A., & Brill, L. Followup study of narcotic drug addicts five years after hospitalization. *Public Health Reports*, 1963, 78(3): 185-193.
78. Edmonton Public School Board. Drug survey reports. Unpublished manuscript, Edmonton, 1971.
79. Einstein, S., & Quinones, M. A. Difficulties in treating the drug abuser. Paper presented at the Thirty-Third Annual Scientific Meeting of the Committee on Problems of Drug Dependence, Toronto, February 16-17, 1971.
80. Fejer, D. Drug use among high school students in North Bay, Ontario. Unpublished manuscript, Project J-183, Substudy 1-Jo-71, Addiction Research Foundation, Toronto, 1971.
81. Fejer, D., & Smart, R. G. Drug use, anxiety and psychological problems among adolescents. *Ontario Psychologist*, 1972, 4: 10-21.
82. Fejer, D., & Smart, R. G. The use of psychoactive drugs by adults. Unpublished manuscript, Project J-183, Substudy 461, Addiction Research Foundation, Toronto, 1972.
83. Flemming, A. S. Amphetamine drugs. *Public Health Reports*, 1960, 75: 49-50.

84. Fossier, A. E. The marijuana menace. *New Orleans Medical and Surgical Journal*, 1931, 84. Cited by J. Mandel, Who says marijuana use leads to heroin addiction? *Journal of Secondary Education*, 1968, 43: 212.
85. Freedman, H. L., & Rockmore, M. J. Marijuana: A factor in personality evaluation and army maladjustment: Part I. *Journal of Clinical Psychopathology*, 1946, 7: 765-782.
86. Gellman, V. Glue-sniffing among Winnipeg school children. *Canadian Medical Association Journal*, 1968, 98: 411-413.
87. Gendreau, P., & Gendreau, L. P. Research design and narcotic addiction proneness. *Canadian Psychiatric Association Journal*, 1971, 16: 265-267.
88. Gérin, S., Beaudry, P., St. Laurent, M., Thibault, M., & Désilets, A. Rapport préparé en fin de session du printemps 1970. Unpublished manuscript, C.E.G.E.P. de Sherbrooke, Sherbrooke, 1970.
89. Gerson, L. W., & Kraker, H. F. Two patterns of dextedrine usage among college students. *Psychiatry Clinica*, 1972, 5: 131-136.
90. Gilbert, B. Drugs in sport. I. Problems in a turned-on world. *Sports Illustrated*, June 23, 1969: 64-72.
91. Gilbert, B. Drugs in sport. II. Something extra on the ball. *Sports Illustrated*, June 30, 1969: 30-42.
92. Gilbert, B. Drugs in sport. III. High time to make some rules. *Sports Illustrated*, July 7, 1969: 30-35.
93. Giordano, H. L. Marihuana—A calling card to narcotics addiction. *FBI Law Enforcement Bulletin*, 1968, 37: 2-5.
94. Glaser, D., Inciardi, J. T., & Babst, D. V. Later heroin use by marijuana-using, heroin-using, and non-drug-using adolescent offenders in New York City. *International Journal of the Addictions*, 1969, 4: 145-155.
95. Glaser, D., Lander, B., & Abbott, W. Opiate addicted and non-addicted siblings in a slum area. *Social Problems*, 1971, 18: 510-521.
96. Goffman, E. *Asylums*. New York: Anchor, 1961.
97. Goode, E. Cigarette smoking and drug use on a college campus. *International Journal of the Addictions*, 1972, 7: 133-140.
98. Goode, E. *Drugs in American society*. New York: Knopf, 1972.
99. Goode, E. *The marihuana smokers*. New York: Basic, 1970.
100. Goode, E. Multiple drug use among marijuana smokers. *Social Problems*, 1969, 17: 48-64.
101. Goode, E. The use of marijuana and other illegal drugs in a college campus. *British Journal of Addiction*, 1971, 66: 335-336.
102. Green, M. The amphetamines and amphetamine-like drugs: Patterns of use. Unpublished Commission research paper, 1971.
103. Green, M. Committed users study. Unpublished Commission research project, 1971.
104. Green, M., & Blackwell, J. C. Final monitoring project. Unpublished Commission research project, 1972.
105. Green, M., Hemmings, B., Miller, R. D., & Hansteen, R. W. Self reporting of drug consumption patterns by regular cannabis users: The logbook study. Unpublished Commission research project, 1971.
106. Green, M., & Leathers, B. Adult drug users study. Unpublished Commission research project, 1971.
107. Grinspoon, L. *Marihuana reconsidered*. Cambridge, Mass: Harvard University Press, 1971.
108. Halpern, G., & Mori, G. *The Ottawa drug survey—Univariate results*. Research report 70-02. Ottawa: Ottawa Board of Education, Research office, 1970.

109. Hamburger, E. Barbiturate use in narcotic addicts. *Journal of the American Medical Association*, 1964, 189: 366-369.
110. Hammond, C. (Former Director, Division of Narcotic Control, Department of National Health and Welfare, Ottawa) Unpublished information provided to the Commission, 1970.
111. Harder, M. W., Richardson, J. F., & Simmonds, R. B. Jesus people. *Psychology Today*, December 1972: 45-50, 110-113.
112. Haslam, P. The maturing process in addiction. *Canadian Journal of Corrections*, 1964, 6: 28-30.
113. Hawks, D., Mitcheson, M., Ogborne, A., & Edwards, G. Abuse of methylamphetamine. *British Medical Journal*, 1969, 2: 715-721.
114. Hayashi, J. The nature and prevalence of drug and alcohol usage in the Fort William secondary schools. Unpublished manuscript, Addiction Research Foundation, Fort William, 1968.
115. Hayashi, J. The nature and prevalence of drug and alcohol usage in the Port Arthur Board of Education summer school, 1968. Unpublished manuscript, Addiction Research Foundation, Fort William, 1968.
116. Hemmings, B., & Miller, R. D. Non-medical drug use as a factor in hospitalization: A survey of Canadian psychiatric hospital records. Unpublished Commission research project, 1971.
117. Henderson, I. *An exploration of the natural history of heroin addiction*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
118. Howard, J., & Borges, P. Needle sharing in the Haight: Some social and psychological functions. *Journal of Health and Social Behaviour*, 1970, 7(3): 220-230.
119. Hughes, F. Alcohol information: Scientific and legal aspects. Unpublished Commission research project, 1972.
120. Hughes, H. M., (Ed.) *The fantastic lodge*. Boston: Houghton Mifflin, 1961.
121. Hughes, P. H., & Crawford, G. A. A contagious disease model for researching and intervening in heroin epidemics. *Archives of General Psychiatry*, 1972, 27: 149-155.
122. Hunt, G. H., & Odoroff, M. E. Followup study of narcotic drug addicts after hospitalization. *Public Health Reports*, 1962, 77: 42-54.
123. Hyde, A. P. Alcohol in Newfoundland. Unpublished manuscript, Newfoundland and Labrador Council on Alcohol Problems, St. John's, 1966.
124. Jackson, J. K. Adjustment of the family to the crisis of alcoholism. *Quarterly Journal of Studies on Alcohol*, 1954, 15: 562-586.
125. Jellinek, E. M. *The disease concept of alcoholism*. New Haven: Hillhouse, 1960.
126. Johnson, B. D. Social determinants of the use of 'dangerous drugs' by college students. Unpublished doctoral dissertation, Department of Sociology, Columbia University, New York, 1971.
127. Johnston, W. E., & Williams, H. R. Drug use patterns and related factors of heroin addicts seeking treatment for their addiction. Unpublished manuscript, Narcotic Addiction Foundation of British Columbia, Vancouver, 1971.
128. Josephson, E., Haberman, P., Zanes, A., & Elinson, J. Adolescent marijuana use: Report on a national survey. Paper presented at the First International Conference on Student Drug Surveys, Newark, New Jersey, September 14, 1971.
129. Josie, G. H. *A report on drug addiction in Canada*. King's Printer and Controller of Stationery, 1948.
130. Kalant, H., & Kalant, O. J. *Drugs, society and personal choice*. Toronto: General Publishing, 1971.
131. Kaplan, J. *Marijuana—The new prohibition*. New York: World, 1970.

132. Keup, W. The typical 'drug career' and therapeutic approaches. Paper presented at the Thirty-Third Annual Scientific Meeting of the Committee on Problems of Drug Dependence, Toronto, February 16-17, 1971.
133. King, J., McDonald, D., & Salloum, H. A survey on the use of marihuana and LSD in the University of Saskatchewan, Regina Campus, and in Regina high schools. Unpublished student essay, University of Saskatchewan, Regina, n.d.
134. Kleber, H. D. Student use of hallucinogens. *Journal of American College Health Association*, 1965, 14: 109-117.
135. Kodua, J. Analysis of narcotic control's statistics: Drug convictions. Unpublished Commission research project, 1970.
136. Kolb, L. Drug addiction in its relation to crime. *Mental Hygiene*, 1925, 9: 74-89.
137. Kosviner, A., Mitcheson, M. C., Ogborne, A., Zacune, J., Myers, K., Stimson, G. V., & Edwards, G. Heroin use in a provincial town. *Lancet*, 1968, 1: 1189-1192.
138. Krug, D. C., Sokol, J., & Nylander, I. Inhalation of commercial solvents: A form of deviance among adolescents. In E. Harms (Ed.), *Drug addiction in youth*, Oxford: Pergamon, 1965. Pp. 36-45.
139. Laforest, L. La consommation de drogues chez les étudiants du secondaire et du collégial de l'Île de Montréal. Unpublished manuscript, Office de la Prévention et du Traitement de l'Alcoolisme et des Autres Toxicomanies, Québec, 1969.
140. Lambert, A. Narcotic addiction: Report of the Mayor's Committee to Hon. Richard C. Patterson Jr., Commissioner of Correction. *Journal of the American Medical Association*, 1929, 93: 1297-1301.
141. Langrod, J. Secondary drug use among heroin users. Unpublished manuscript, Bureau of Applied Social Research, Columbia University, New York, November, 1969.
142. Lanphier, C. M., & Phillips, S. B. The non-medical use of drugs and associated attitudes: A national household survey. Unpublished Commission research project, 1971.
143. Lanphier, C. M., & Phillips, S. B. Secondary school students and non-medical drug use: A national survey of students enrolled in grades seven through thirteen. Unpublished Commission research project, 1971.
144. Lanphier, C. M., & Phillips, S. B. University students and non-medical drug use: A national survey. Unpublished Commission research project, 1971.
145. Lerner, J., & Tefferteller, R. *The addict in the street*. New York: Grove, 1966.
146. Leary, T. *High priest*, New York: World, 1968.
147. Levengood, R., Lowinger, P., & Schoof, K. Heroin addiction in the suburbs: An epidemiologic study. Unpublished manuscript, Lafayette Clinic, Detroit, Mich., 1971.
148. Levine, S. V., Lloyd, D. D., & Longdon, W. H. The speed user: Social and psychological factors in amphetamine abuse. *Canadian Psychiatric Association Journal*, 1972, 17: 229-240.
149. Levy, B. S. Five years after: A follow-up of 50 narcotic addicts. *American Journal of Psychiatry*, 1972, 128: 868-872.
150. Lindesmith, A. R. *The addict and the law*. New York: Vintage, 1965.
151. Lindesmith, A. R. *Addiction and opiates*. Chicago: Aldine, 1968.
152. Lindesmith, A. R. The drug addict as a psychopath. *American Sociological Review*, 1940, 5: 914-920.
153. Louria, D. B. *The drug scene*. New York: McGraw-Hill, 1968.
154. Lubin, S., Blumberger, S., Diez d'Aux, R., Garfinkle, E., Goldhamer, P., Groulx, B., Kahn, R., & Weiner, H. Stress and drug use among medical students at McGill University. Unpublished manuscript, McGill University, Montreal, 1971.

155. MacDonald, R. St. J. Narcotic drug addiction in Canada. In his *Current law and social problems*. Toronto: University of Toronto Press, 1960. Pp. 162-204.
156. Mandel, J. Myths and realities of marihuana pushing. In J. L. Simmons (Ed.), *Marihuana: Myths and realities*. North Hollywood, Calif.: Brandon House, 1967. Pp. 58-110.
157. Mandel, J. Stepping stone theory. Unpublished manuscript, Department of Sociology, Sonoma State College, Rohnert Park, Calif., 1971.
158. Mandel, J. Who says marijuana use leads to heroin addiction? *Journal of Secondary Education*, 1968, 43: 211-217.
159. Manheimer, D. I. Marijuana use among adults in two San Francisco Bay area locales. Paper presented at the Conference on Drug Usage and Drug Subcultures, Asilomar, Calif., February 12, 1970.
160. Marchuk, E. Montreal report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
161. Marcovitz, E., & Myers, H. J. The marihuana addict in the army. *War Medicine*, 1944, 6: 382-391.
162. Markham, J. M. Heroin hunger may not a mugger make. *New York Times Magazine*, March 18, 1973: 39, *et passim*.
163. Martindale, D., & Martindale, E. *The social dimensions of mental illness, alcoholism, and drug dependence*. Westport, Conn.: Greenwood, 1971.
164. Maurer, D. W., & Vogel, V. H. *Narcotics and narcotic addiction*. (3rd ed.) Springfield, Ill.: C. C. Thomas, 1969.
165. Mayor's Committee on Marihuana. *The marihuana problem in the City of New York*. Lancaster, Penn.: Jacques Cattell Press, 1944. ('The La Guardia Report').
166. McCabe, O. L., & Kurland, A. A. Paroled narcotic addicts in a verified abstinence program: Results of a five year study. Unpublished manuscript, Maryland Psychiatric Research Center, Baltimore, Md., 1972. In press, *Federal Probation Quarterly*, 1972.
167. McDonald, L. The Matsqui Prison story. Unpublished Commission research project, 1971.
168. McGlothlin, W., Jamison, K., & Rosenblatt, S. Marijuana and the use of other drugs. *Nature*, 1970, 228: 1227-1229.
169. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission, November 9, 1972.
170. McKim, T. R. (Director, Bureau of Dangerous Drugs, Ottawa) Letter to the Commission with relevant tables, November 14, 1972.
171. Mellinger, G. D., Mitchell, B. B., & Manheimer, D. I. Patterns of psychotherapeutic drug use among adults in San Francisco. Unpublished manuscript, Family Research Center, Berkeley, Calif., n.d.
172. Miller, B., & Helwig, D. *A book about Billie*. Ottawa: Oberon, 1972.
173. Miller, R. D., & Hemmings, B. Drug induced poisoning and death in Canada. Unpublished Commission research project, 1973.
174. Mills, J. *The panic in needle park*. Toronto: New American Library, 1965.
175. Mizner, G. L., Barter, J. T., & Werme, P. H. Patterns of drug use among college students. Paper presented to the American Psychiatric Association, Miami, Fla., 1969.
176. Modlin, H. C., & Montes, A. Narcotics addiction in physicians. *American Journal of Psychiatry*, 1964, 121: 348-365.
177. Moore, M. *Policy concerning drug abuse in New York State*. Vol. III. *Economics of heroin distribution*. Croton-on-Hudson, N.Y.: Hudson Institute, 1970.

178. Mulford, H. A. Drinking and deviant drinking, U.S.A., 1963. *Quarterly Journal of Studies on Alcohol*, 1964, 25: 634-650.
179. Murphy, C. Halifax report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
180. Narcotic Addiction Foundation of British Columbia. Drug use among Vancouver secondary students. Unpublished manuscript, Narcotic Addiction Foundation of British Columbia, Vancouver, 1971.
181. Narcotic Addiction Foundation of British Columbia. *15th annual report*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1971.
182. Newmeyer, J. A. The end of the heroin epidemic of the San Francisco Bay area. Unpublished manuscript, Haight-Ashbury Free Medical Clinic, San Francisco, Calif., 1973.
183. Newmeyer, J. A. (Epidemiologist, Haight-Ashbury Free Medical Clinic, San Francisco, Calif.) Information communicated to the Commission, 1973.
184. O'Donnell, J. A. *Narcotic addicts in Kentucky*. (Public Health Service Publication No. 1881) Washington, D.C.: U.S. Government Printing Office, 1969.
185. O'Donnell, J. A. Social factors and followup studies in opioid addiction. In A. Winkler (Ed.), *The addictive states*. Baltimore: Williams & Wilkins, 1968. Pp. 333-346.
186. Oki, G. Heroin abuse in the greater Toronto area. Unpublished manuscript, Project J-138, Substudy 454, Addiction Research Foundation, Toronto, 1972.
187. Oki, G., & Sisson, B. V. A study of marihuana users and usage. Unpublished manuscript, Project F-169, Substudies 2-16 & 34-70, 3-16 & 34-70, Addiction Research Foundation, Toronto, 1970, and supplemental information provided to the Commission.
188. O'Neill, M. J. Toronto report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
189. Pan-American Coffee Bureau. *Coffee drinking in Canada*. New York: Pan-American Coffee Bureau, 1970.
190. Parry, H. J. Patterns of psychotropic drug use among American adults: *Journal of Drug Issues*, 1971, 1: 269-273.
191. Parry, H. J. Use of psychotropic drugs by U.S. adults. *Public Health Reports*, 1968, 83: 799-810.
192. Paschke, W. R. The addiction cycle: A learning theory-peer group model. *Corrective Psychiatry and Journal of Social Therapy*, 1970, 16: 74-81.
193. Paton, W. D. Guide to drugs 5. [Cannabis] *Drugs and society*, 1972, 1(9): 17-20.
194. Paulus, I. Psychedelic drug use on the Canadian Pacific coast—Notes on the new drug scene. *International Journal of the Addictions*, 1969, 4: 77-88.
195. Pittel, S. M., & Hofer, R. The transition to amphetamine abuse. In *Proceedings of the Workshop on Current Concepts of Amphetamine Abuse*. Durham, N.C.: Duke University Medical Center, 1970.
196. Plaut, T. F. A. *Alcohol problems: A report to the nation by the Cooperative Commission on the Study of Alcoholism*. New York: Oxford University Press, 1967.
197. Playboy. Student survey. *Playboy*, 1970, 17(9): 182, *et passim*.
198. Playboy. Student survey: 1971. *Playboy*, 1971, 18(9): 118, *et passim*.
199. Polonsky, D., Davis, G. R., & Roberts, C. F. *A follow-up study of the juvenile drug offender*. Sacramento Calif.: Institute for the Study of Crime and Delinquency, 1967.
200. Popham, R. E., Schmidt, W., & de Lint, J. The prevention of alcoholism: Epidemiological studies of the effects of government control measures. Unpublished manuscript, Project J-100, Substudy 2-2 & 10-71, Addiction Research Foundation, Toronto, 1971.

201. Preble, E., & Casey, J. J., Jr. Taking care of business: The heroin user's life on the street. *International Journal of the Addictions*, 1969, 4: 1-24.
202. Press, E., & Done, A. K. Solvent sniffing: Physiologic effects and community control measures for intoxication from the intentional inhalation of organic solvents. *Pediatrics*, 1967, 3: 451-461 & 611-622.
203. Price, H. F. The criminal addict. *R.C.M.P. Quarterly*, 1946, 12: 149-158.
204. Proctor, M. The habit. *International Journal of the Addictions*, 1971, 6: 5-18.
205. Propas, S., & Murphy, J. McGill drug survey. Unpublished manuscript, Student's Society of McGill University, Montreal, November 1969.
206. Quinn, E. Alcoholism: Family illness—Family recovery. Unpublished manuscript, Alcohol Foundation of Prince Edward Island, Charlottetown, 1970.
207. Rankin, J. G. (Ed.) Trends in heroin use in Ontario. Unpublished manuscript, Addiction Research Foundation, Toronto, 1971.
208. Ray, M. B. The cycle of abstinence and relapse among heroin addicts. In H. S. Becker (Ed.), *The other side: Perspectives on deviance*. New York: Free Press, 1964. Pp. 163-177.
209. Rensberger, B. Amphetamines used by a physician to lift moods of famous patients. *New York Times*, December 4, 1972: 1 & 3-4.
210. Rensberger, B. Two doctors here known to users as sources of amphetamines. *New York Times*, March 25, 1973: 48.
211. Richman, A. Follow-up of criminal narcotic addicts. *Canadian Psychiatric Association Journal*, 1966, 11: 107-115.
212. Richman, A., Borschnek, A., & Rienzi, A. Natural history of narcotic addiction. *Canadian Psychiatric Association Journal*, 1964, 9: 431-438.
213. Richman, A., & Humphrey, B. Epidemiology of criminal narcotic addiction in Canada. *Bulletin on Narcotics*, 1969, 21: 31-40.
214. Robins, L. N., Bates, W. N., & O'Neal, P. Adult drinking patterns of former problem children. In D. J. Pittman & C. P. Snyder (Eds.), *Society, culture and drinking patterns*. New York: Wiley, 1962.
215. Robins, L. N., Darvish, H. S., & Murphy, G. E. The long-term outcome for adolescent drug users: A follow-up study of 76 users and 146 nonusers. In J. Zubin & A. M. Freedman (Eds.), *The psychopathology of adolescence*. New York: Grune & Stratton, 1970.
216. Robins, L. N., & Murphy, G. E. Drug use in a normal population of young negro men. *American Journal of Public Health*, 1967, 57: 1580-1596.
217. Rodewald, R. R. Speed kills: The adolescent methedrine addict. *Perspectives in Psychiatric Care*, 1970, 8(4): 160-164.
218. Room, R. Drinking laws and drinking behaviour: Some past experience. Paper presented to the Symposium on Law and Drinking Behavior at the Centre for Alcohol Studies, University of North Carolina, Chapel Hill, N.C., November 17-19, 1970.
219. Rootman, I., Clark, S., & Oakey, J. Drug use among rural students in Alberta. *Canada's Mental Health*, 1972, 20: 9-14.
220. Royal Canadian Mounted Police. Brief of R.C.M. Police "D" Division, Winnipeg. Appendix to the brief submitted by R.C.M. Police to the Commission at a private hearing, Ottawa, September 13, 1969.
221. Rubin, T. Prevention and rehabilitation of solvent inhalation. Paper presented at the Workshop on Glue and Solvent Sniffing sponsored by the Non-Medical Use of Drugs Directorate, Department of National Health and Welfare, Winnipeg, March 29-30, 1972.
222. Rubin, T., & Babbs, J. The glue sniffer. *Federal Probation*, 1970, 34(3): 23-28.

223. Rubington, E. Drug addiction as a deviant career. *International Journal of the Addictions*, 1967, 2: 3-20.
224. Russell, M. A. H. Cigarette smoking: Natural history of a dependence disorder. *British Journal of Medical Psychology*, 1971, 44: 11. Cited by E. M. Brecher, et al., *Licit and illicit drugs*. Boston: Little, Brown, 1972. Pp. 238-239.
225. Russell, J. *Survey of drug use in selected British Columbia schools*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
226. Russell, J. S. & Tuxford, G. S. *Drug use among young adults*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1971.
227. Sadava, S. W. College student drug use: A social psychological study. Unpublished doctoral dissertation, University of Colorado, 1970.
228. Sadava, S. W. Patterns of drug use: A review with specific reference to cannabis, hallucinogens, barbiturates and volatile solvents. Unpublished Commission research paper, 1971.
229. Sadava, S. W., The social psychology of non-medical drug use: A review and analysis. Unpublished manuscript, Institute of Behavioral Science, University of Colorado, 1969.
230. Schaps, E., & Sanders, C.R. Purposes, patterns and protection in a campus drug using community. *Journal of Health and Social Behavior*, 1970, 11: 135-145.
231. Schasre, R. Cessation patterns among neophyte heroin users. *International Journal of the Addictions*, 1966, 1: 23-32.
232. Scher, J. M. Group structure and narcotic addiction: Notes for a natural history. *International Journal of Group Psychotherapy*, 1961, 11: 88-93.
233. Schmidt, W., & de Lint, J. Estimating the prevalence of alcoholism from alcohol consumption and mortality data. *Quarterly Journal of Studies on Alcohol*, 1970, 31: 957-964.
234. Schur, E. M. *Narcotic addiction in Britain and America*. Bloomington, Ind.: Indiana University Press, 1968.
235. Scope Publications. 1972 looms as "year of the downer", more controls asked, AMA opposed. *Drugs and Drug Abuse Education Newsletter*, 1971, 2(12): 1 & 8-10.
236. Shapiro, S., & Baron, S. H. Prescriptions for psychotropic drugs in a non-institutional population. *Public Health Reports*, 1961, 76: 481-488.
237. Shick, F. E., Smith, D. E., & Meyers, F. H. Use of amphetamine in the Haight-Ashbury subculture. *Journal of Psychedelic Drugs*, 1969, 2: 140-171.
238. Simon, W., & Gagnon, J. H. *The end of adolescence: The college experience*. New York: Harper & Row, 1970. Cited by E. Goode, *The marijuana smokers*. New York: Basic, 1970. P. 201.
239. Smart, R. G., & Fejer, D. Marijuana use among adults in Toronto. Unpublished manuscript, Project J-183, Substudy 6-7 & Jo-71, Addiction Research Foundation, Toronto, 1971.
240. Smart, R. G., Fejer, D., & Alexander, E. Drug use among high school students and their parents in Lincoln and Welland counties. In P. H. Blachly (Ed.), *Progress in drug abuse*. Springfield, Ill.: C. C. Thomas, 1972. Pp. 62-103.
241. Smart, R. G., Fejer, D., & White, J. *The extent of drug use in metropolitan Toronto schools: A study of changes from 1968 to 1970*. Toronto: Addiction Research Foundation, 1970.
242. Smart, R. G., Fejer, D., & White, J. Drug use trends among metropolitan Toronto students: A study of changes from 1968 to 1972. Unpublished manuscript, Project J-183, Substudy 512, Addiction Research Foundation, Toronto, 1972.

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243. Smart, R. G., Laforest, L., & Whitehead, P. C. Comparative rates of drug use among adolescent students: Halifax-Montreal-Toronto. Paper presented to the Association of Atlantic Sociologists and Anthropologists, St. John's, Newfoundland, March, 1970.
244. Smart, R. G., & Whitehead, P. C. The consumption patterns of illicit drugs and their implications for prevention of abuse. *Bulletin on Narcotics*, 1972, 24(1): 39-47.
245. Smith, E. Monitoring study reports: Halifax. Unpublished Commission research project, 1971.
246. Smith, R. Status politics and the image of the addict. *Issues in Criminology*, 1966, 2: 157-175.
247. Smith, R. C. *The marketplace of speed: Compulsive methamphetamine abuse and violence*. (Doctoral dissertation, University of California, Berkeley) Ann Arbor, Mich.: University Microfilms, 1970. No. 70-12, 983.
248. Smith, R. C. The world of the Haight-Ashbury speed freak. *Journal of Psychedelic Drugs*, 1969, 2: 172-188.
249. Smith, S. N., & Blachly, P. H. Amphetamine usage by medical students. *Journal of Medical Education*, 1966, 41: 167-170.
250. Stanley, L. L. Morphinism and crime. *Journal of Criminal Law and Criminology*, 1918, 8: 749-756.
251. Stennett, R. G., Feenstra, H. J., & Aharan, C. H. Tobacco, alcohol and drug use reported by London secondary school students. Unpublished manuscript, Addiction Research Foundation and the Board of Education for the City of London, London, 1969.
252. Stephens, R., & Cottrell, E. A follow-up study of 200 narcotic addicts committed for treatment under the Narcotic Addiction Rehabilitation Act (NARA). *British Journal of Addiction*, 1972, 67: 45-53.
253. Stevenson, G. H., Lingley, L. P. A., Trasov, G. E., & Stanfield, H. *Drug addiction in British Columbia*. Vancouver: University of British Columbia, 1956.
254. Stoddart, K. W. Drug transactions: The social organization of a deviant activity. Unpublished master's thesis, University of British Columbia, Vancouver, 1968.
255. Sutter, A. G. The world of the righteous dope fiend. *Issues in Criminology*, 1966, 2(2): 177-222.
256. Terry, C. E., & Pellens, M. *The opium problem*. New York: Committee on Drug Addictions and the Bureau of Social Hygiene, 1928.
257. Towns, C. The injury of tobacco. *Prohibitionist Century*, March, 1912.
258. Townsend, I. (Student, Dawson College, Westmount, P.Q.) Letter to the Commission, October 21, 1969.
259. United Press International. Three booked in California as infant takes 'bad trip'. *Gazette* (Montreal), September 10, 1971: 4.
260. United States, Department of Health, Education and Welfare, National Institute of Mental Health. *Marihuana and Health*, Washington, D.C.: U.S. Government Printing Office, 1971.
261. United States, National Commission on Marijuana and Drug Abuse. Marijuana and the use of other drugs. In its *Marijuana: A signal of misunderstanding*. Appendix, Vol. 1. Washington: U.S. Government Printing Office, 1972. Pp. 340-423.
262. United States, Eighty-ninth Congress, Senate, Committee on Government Operations. *Organization and coordination of federal drug research and regulatory programs: LSD*. Washington, D.C.: U.S. Government Printing Office, 1966.
263. Vaillant, G. E. The natural history of narcotic drug addiction. *Seminars in Psychiatry*, 1970, 2: 486-498.

264. Vaillant, G. E. A twelve-year follow-up of New York narcotic addicts: I. The relation of treatment to outcome. *American Journal of Psychiatry*, 1965-66, 122: 727-737.
265. Vaillant, G. E. A twelve-year follow-up of New York narcotic addicts: II. The natural history of a chronic disease. *New England Journal of Medicine*, 1966, 275: 1282-1288.
266. Vaillant, G. E. A twelve-year follow-up of New York narcotic addicts: III. Some social and psychological characteristics. *Archives of General Psychiatry*, 1966, 15: 599-609.
267. Vaillant, G. E. A twelve-year follow-up of New York narcotic addicts: IV. Some characteristics and determinants of abstinence. *American Journal of Psychiatry*, 1966, 123: 573-584.
268. Waldorf, D. *Careers in dope*. Englewood Cliffs, N.J.: Prentice-Hall, 1973.
269. Waldorf, D. Life without heroin: Some social adjustments during long-term periods of voluntary abstinence. *Social Problems*, 1970, 18: 228-243.
270. Watkins, C. Use of amphetamine by medical students. *Southern Medical Journal*, 1970, 63: 923-929.
271. Weil, A. T. Testimony before the U.S. National Commission on Marihuana and Drug Abuse. Unpublished manuscript, National Institute for Mental Health, Chevy Chase, Md., May 18, 1971.
272. Whitehead, P. C. *Drug use among adolescent students in Halifax*. (Rev. ed.) Halifax: Youth Agency of the Province of Nova Scotia, 1970.
273. Whitehead, P. C. The epidemiology of drug use in a Canadian city at two points in time: Halifax, 1969-1970. Unpublished manuscript, Department of Sociology, University of Western Ontario, and Addiction Research Foundation, London, 1970.
274. Whitehead, P. C. The sequence of drug use among adolescent students. Paper presented to the Ontario Psychological Association, Toronto, February 4, 1971.
275. Whitehead, P. C., Smart, R. G., & Laforest, L. Multiple drug use among marijuana smokers in Eastern Canada. *International Journal of the Addictions*, 1972, 7: 179-190.
276. Winick, C. Maturing out of narcotic addiction. *Bulletin on Narcotics*, 1962, 14: 1-7.
277. Winick, C. Physician narcotic addicts. In H. S. Becker (Ed.), *The other side: Perspectives on deviance*. New York: Free Press, 1964.
278. Winick, C. Some aspects of careers of chronic heroin users. Paper presented at the Columbia University Conference on Epidemiology of Drug Use, San Juan, Puerto Rico, February 12-14, 1973.
279. Wolfe, T. *The electric kool-aid acid test*. Toronto: Bantam, 1969.
280. Wood, S. Doctor Feelgood are you sure it's all right? *New York Magazine*, February 8, 1971: 26-35.
281. World Coffee and Tea. Guide to world tea markets. *World Coffee and Tea*, 1971, 12(5): 55.
282. Wurmser, L. Myths and facts about marijuana. *Alumnae Magazine*, 1970, 69: 3-5.
283. Young, J. *The drugtakers*. London: MacGibbon & Kee, 1971.
284. Zinberg, N. E., & Weil, A. T. A comparison of marijuana users and non-users. *Nature*, 1970, 226: 119-123.

Motivation and Other Factors Related to Non-Medical Drug Use

D.1 GENERAL

The Commission has available numerous sources of information concerning the causes of non-medical drug use, the motivation of users and the factors associated with this phenomenon. Among these sources are the testimony presented at the public hearings of the Commission and in private meetings with the Commissioners and staff; reports from our participant observers and other researchers who worked with the Commission; evidence and comments presented at special symposia organized by the Commission to which a number of world experts were invited; and the results of surveys that have been carried out by the Commission, universities, drug foundations and individual scholars. In addition the Commission has studied and critically analysed the major psychiatric, psychological and sociological literature dealing with the motivational and other factors associated with the non-medical use of drugs.

There has been a very great increase in the volume and quality of research and interpretation available. Many aspects of non-medical drug use can be described with accuracy, and we can make reasonable attempts at explaining the phenomenon. However, as for any other human phenomenon, it is not possible to provide final, comprehensive and definitive explanations. Our understanding will improve as more research is completed.

CAUSES, MOTIVATIONS AND ASSOCIATED FACTORS

In the context of our existing knowledge of non-medical drug use the term *cause* must be used with caution. In general usage, cause is taken to mean that which is invariably and unconditionally followed by a certain specific effect. When the term is used in this sense we know of nothing that can be demonstrated to inevitably produce non-medical drug use at either the group or individual level. We can, however, point to various factors that are frequently associated with the phenomenon. A number of these conditions

(social, psychological, political, economic, philosophical, etc., in nature) can be seen to be frequently and intimately associated with non-medical drug use. They may or may not have an underlying role in producing it or in increasing the probability of it occurring.

The term *motive* refers, generally, to that which induces an individual to act. While motive may be held in common by members of a group or social category, a discussion of motivation must take account of the idiosyncratic. It is never possible to be certain that we can accurately describe, let alone fully comprehend and understand, the motivation of another person. Data about an individual's motives can be gathered from his own statements about the reasons for his conduct, as collected in interviews and questionnaires. Data can also be gathered by means of various projective tests which seek to probe beneath the level of consciousness. Data concerning motivation can be taken from the interpretations of those who observe or analyse behaviour. But there is never an ultimate check on the validity of the data. The individual reporting his motives may or may not want to divulge the most important ones and may or may not truly understand himself.

Even were it possible to fully understand and explain the use of some drug by an individual or group in some community in a particular year, we would not be in a position to posit universally applicable generalizations about the use of that drug. The context of drug use necessarily varies from person to person, place to place and through time. The use of heroin, for instance, has often been associated with the ghetto conditions of ethnic minorities in the United States, but heroin use in Canada and England is not as frequently related to these conditions. A few years ago an explanation of marijuana use would stress the religious and philosophical quest associated with its use by some cannabis smokers, while a contemporary description might well give only passing reference to these searchings.

NECESSARY CONDITIONS

While we cannot accurately point to the specific causes of non-medical drug use, we can indicate certain conditions which must be present for the phenomenon to occur. For example, the availability of heroin and the presence of a population of heroin users in a community are almost always pre-conditions for the spread of the use of this drug. Needless to say, an interest in the drug or a willingness to experiment with it may be present without the drug or users, but this interest *per se* cannot lead to use. However, availability alone does not necessarily produce use. Thus, availability is a necessary but not sufficient condition for increased use of a drug.

Supply often precedes demand. For example, when new drugs are introduced for research purposes or appear on the market for the first time, there may be a considerable timelag before an interest in the drug is generated. To a large extent this interest appears to be fostered by word

of mouth or example. As knowledge of the existence of the drug spreads, some individuals become curious about its effects or otherwise interested in using it themselves. They may then either deliberately seek a supply or wait for an opportunity to fortuitously arise. Historically the commercial production, advertising and marketing for medical purposes of opiates, barbiturates, LSD, amphetamines and a number of other drugs played a role in generating an interest that eventually led to their widespread non-medical use. In turn, information about non-medical use spread, creating new curiosity and interest and fostering new demand. Once this availability-interest chain of individual and social factors is established, the prevention of continued or expanded use of a drug is extraordinarily difficult.

MACRO-SOCIAL CONDITIONS

There have been many suggestions that social conditions such as poverty, ghetto or slum residence, unemployment or frustrating, dull and repetitious work, and minority or ethnic group status are among the important factors underlying the non-medical use of certain drugs. These conditions, for example, have often been found to be associated with the use of alcohol and the opiate narcotics. A number of scholars have hypothesized that the war in Vietnam fostered an alienation among many young people that, in turn, provided fertile soil for the spread of the use of cannabis and LSD. Alienation from what is perceived to be an overly bureaucratized society that seems to offer little scope for emotion and feeling has also been noted.

Keniston and Roszak in the United States, and Zijderveld and Crook in Canada, have made notable contributions to relating broad, macro-social forces to the non-medical use of drugs. Keniston deals with drug use as part of a pattern of passive responses to the alienation experienced by university students.¹⁸⁸ Roszak sees drug use developing as part of an evolving counter culture that rejects the contemporary "technocratic society".²³¹ Zijderveld, in a similar manner, treats drug use as an aspect of some persons' rejection of our presently "abstract society".⁴²⁴ Crook, in a paper prepared for the Commission, stresses the failure of the major social institutions to provide situations and opportunities for meaningful and satisfying social participation by the young.⁹⁶

None of these approaches find the source of drug use in the traditional social and individual problems of economic deprivation or minority status. Rather they stress the psychological problems of the well-to-do and socially privileged who cannot find satisfaction or meaning in the relatively affluent life offered them by their parents.

Keniston was one of the first writers to deal with broad social conditions as background causes of student drug use, relating them to alienation, counter culture and, eventually, the non-medical use of drugs.^{187, 188} The causes he notes vary depending on the level-of-use being discussed. Occasional users

("tasters" or "seekers") are said to be motivated by a variety of factors, including their intellectual orientation, the high value accorded by them to the search for truth, and their privileged social background. He argues that the pressure of sophisticated academic institutions, insofar as they attach priority to conventional success goals like high marks and scholarships, is an additional stimulus to the creation of a counter culture. The occasional users may give a higher priority to values such as expressiveness and immediate experience than to the conventional success goals. In contrast, Keniston sees the heavy user ("the head") as highly alienated to the point of rejecting many fundamental American values, such as material success, far more than does the occasional user. The latter, he suggests, has merely rearranged his priorities. Keniston also refers to the activists who believe in the traditional values of justice and equality and realize them in actuality. However, he feels that the activist alternative became increasingly inappropriate for white alienated college students with declining opportunities for their participation in the civil rights movement and their conclusion that the war on poverty was a false promise. Hence, the probability of turning to the passive drug alternative increased.¹⁸⁸ The heavy user is said to feel estranged from others and from his own experience. Drug use in a counter cultural context, then, provides him with an alternative to facing certain pressures, and may even give him a feeling of union with others from whom he would otherwise feel estranged. Keniston also argues that students with psychological problems are more likely to turn to heavy drug use than better adjusted students at times of depression or anxiety, although he does not suggest that this accounts for a significant amount of student drug consumption.¹⁸⁷

Roszak emphasizes the technocratic nature of society as the source of alienation.³²¹ He suggests that the quality of contemporary life is woefully deficient in terms of subjective satisfactions, and neither economic accomplishments nor equality can substitute for these dissatisfactions. He describes contemporary social conflict as occurring between generations rather than classes, and the response is the making of a new culture rather than a new class or political movement. Sensuality, immediacy, emotion and mysticism are valued in the counter culture. Drug use, if not actually conducive to these values, is certainly compatible with them and, hence, encouraged.

Drug use, according to Zijderveld, is part of a protest against an abstract society with its emphasis on objectivity, rationality and routine, and its refusal to allow people to live as complete beings with human emotions, beliefs and needs.⁴²⁴ Three "ideal-types" of protest are posited: "gnostic" (in which drug use is prominent), "anarchist" and "activist". The gnostic response involves the rejection of western rationality and a withdrawal into subjective experience which, in a consumption-minded society, can be precipitated with least effort by the use of drugs. A deeper absolute sense of reality is sought, which cannot be obtained with the plodding scientific method of the abstract society. Drug use is also part of the anarchistic response, but, in this case, it is not intended for consciousness expansion but, rather, symbolizes rejection of the

establishment and an attempt to return to a more natural, individual and less routinized style of life.

Crook sees young people rejecting a society which they perceive as devoid of human concerns and dominated by a bureaucratic social system.⁹⁶ He also emphasizes a more traditional conflict of generations. He suggests that many young people feel that they are being denied opportunities for a meaningful participation in their society. He argues that these are feelings which they share with the poor but that they feel this denial much more strongly than do the members of the lower social classes and have more opportunities to rebel. Crook also notes that in industrial societies such as Canada there is a tendency for childhood to be shortened but for adolescence to be prolonged. The young child, he suggests, may be indulged, but high standards and expectations are set for the adolescent who is also expected to have learned to postpone immediate gratification for later rewards. In Crook's view many parents who grew up during the Depression attempt to live vicariously through their children, and this further heightens the demands that are made on the adolescent. These factors collectively increase the probability of conflict between the members of different generations. He argues that a number of these problems are particularly acute in Canada. Many Canadian parents are themselves alienated due to the rather recent shift of this country from a predominantly rural to an urban, industrialized culture—a shift to which many parents have not wholly adapted themselves. Moreover, the potential for conflict between generations is enhanced because many of these parents hold values that are anachronistic and inappropriate to the urban setting in which their children are growing up.

According to Crook, young people today must submit themselves to a dehumanizing system of education without the compensation of being assured of security, let alone "happiness", when their studies are over. Their parents, raised during the Depression, had even less security, but they could not even imagine escaping the "system". Also, thanks to a longer period of education and their extensive consumption of television, the young of today are far more aware of problems of the world than were their parents.

The result, according to this theory, is a rejection of the bureaucratized, industrialized society, including its rationalism. To a great extent, this rejection of the conventional western intellectual approach to life also includes the rejection of political ideology and political activism. Repudiation of a political activist response, then, leaves only retreatist modes, such as drug use, 'hippie' styles of life, and experiments with other life styles like communes.

Many of the same aspects of the counter culture are described in another, but somewhat different, position. Marijuana use is seen as related to adherence to a "hang-loose ethic", a positively valued alternative set of values, goals, beliefs, norms and attitudes, held by certain young people.³⁵⁰ The

hang-loose ethic emphasizes irreverence for the dominant institutions of church and state (marriage, pre-marital chastity, and wealth, for example) and expresses a lack of faith in the competence of the government, schools and parents to fulfil their functions.

Several authors focus on the positive attractiveness of drugs, without reference to any of the "problems" which are often said to trigger drug use. For example, Fort explains drug use as a learned behaviour of persons who have accepted the high value placed on pleasure in their society.¹²⁷ The user is not necessarily responding to problems and need not have more problems than non-users. Rather, he is following a well entrenched mode of finding satisfaction.

The theory of alienation has, on occasion, been tested empirically; there are methods of finding out and measuring the degree to which a person feels alienated or estranged from, or unable to act in response to, existing social institutions. Replication of studies conducted with these instruments some years ago could throw needed light on the discussion that is now taking place about the changing character of the youthful drug-using population.

These broad theories, of which the work of Keniston, Zijderveld, Roszak, Crook and Fort are examples, have more to say about the use of mild and strong hallucinogens (even their heavy use) than about the use of 'speed' and the opiate narcotics. A detailed analysis of the factors involved in the use of these latter drugs will follow and may help us provide some *specific* insight into the dynamics involved in the use of some of those drugs that have a considerable potential for harm. We will also discuss studies immediately pertinent to the factors associated with and motivations involved in the use of strong hallucinogens.

DRUGS OF CONCERN

Alcohol, tobacco, the barbiturates, tranquilizers, and cannabis certainly account for more than ninety per cent of all Canadian psychotropic drug use, and the Commission has at many times examined the factors that account for their use. In its deliberations and recommendations it has carefully considered these underlying dynamics, as well as the data available on the extent of use and the effects of these drugs. Yet we do not think, at this stage, that the Canadian public needs detailed analysis of the factors and motivations leading specifically to the use of these substances. They may be drugs of concern in the sense that we are justifiably overwhelmed by our understanding of the quantities consumed, the fact that they are, in some cases, capable of producing dependence, and the number of persons involved in their use (from all age groups and social strata); but the desire for an understanding of cause focuses on three categories of non-medical use which appear particularly threatening: namely, the *opiate narcotics*, the *amphetamines* and the *strong hallucinogens*. Hence we will focus our analysis

of factors and motivations on these three drug categories of greatest immediate concern. Those who are concerned with the etiological dynamics of other types of drug use may turn to the bibliography for references in these areas.

There was a time, some three or four years ago, when it would have been legitimate to try to state the reasons behind the use of a particular drug. Indeed, although the majority of us used at least alcohol (often in combination with one or more other drugs), the upsurge in the use of cannabis, for instance, was such a major cause of concern during a certain period that it appeared to need specific explanation. The alienation and counter-culture theories discussed above were given impetus by this concern about cannabis use. However, a drug-by-drug analysis has become less useful as time goes on, and it is obvious that a wide variety or combination of products is used by many of us, and that multiple drug use is, indeed, the most common pattern of use (see Appendix C.4 *Patterns of Use*, "Patterns of Multiple Drug Use"). Yet, the opiate narcotics, strong hallucinogens and amphetamines (especially the intravenous use of the latter) lend themselves to a specific analysis of the motivations and factors involved in first and continued use, and, because of their relative potential for harm, they will be discussed separately below.

Whenever possible, psychological and psychiatric theories will be reviewed under "individual factors", whereas macro-social and group conditions that are felt to lead to the use of a particular drug will be analysed under "social factors". However, in order to understand the realities of drug use, it must be noted that this distinction is an arbitrary one for purposes of analysis. It is both difficult and, on occasion, misleading to separate individual from social factors as they are inextricably linked in any comprehensive explanation of the causative dynamics regarding the non-medical use of drugs.

D.2 OPIATE NARCOTICS

The opiate narcotic drugs include opium, its active alkaloids and derivatives, and related synthetic compounds. In the following discussion attention is directed primarily to that population of users defined by the Bureau of Dangerous Drugs as "habitual illicit narcotic drug users". While other opiates are occasionally used (for example, opium, codeine, propoxyphene and morphine), of the more potent opiate narcotics heroin is the most commonly used for non-medical purposes. Similarly, although other populations are known to use opiates illicitly (for example, members of the medical and para-medical professions), "habitual illicit narcotic drug users" account for most of the dependent users of this class of drugs in Canada.

While most theories of opiate narcotics use are concerned with the problem of "addiction", it is important to realize that the causes of initial use

of heroin may be different from those related to continued or dependent use. In Appendix C.4 *Patterns of Use*, we review the process whereby persons come to use drugs, including heroin, for the first time and on an experimental basis. Beyond the social dynamics of this initiation process, there are several additional factors which various theorists have presented as responsible for beginning heroin use.

Two important factors in this regard are availability and association with those who are already using the drug. While it is true that demand for a drug increases its availability, it is apparent that access to, and use of, opiate narcotics is greatest at those times when, and in those communities or situations where, it is most readily available. For example, American epidemiological research has consistently found the highest rates of heroin use in urban ghettos in which there is easy access to the drug. For similar reasons, the rates of opiate use are inordinately high among members of the health-related professions and among American servicemen in South East Asia.^{237, 267, 345} In both of these latter cases opiate narcotic drugs are readily available at little or no cost. Furthermore, it is noteworthy that the extremely high incidence of opiate use and dependence in North America during the late 19th and early 20th centuries was primarily due to the virtually unrestrained commercial and pharmaceutical production, distribution and promotion of these drugs.⁷ Availability, as a factor in explaining why persons in some groups are more likely to use opiate narcotics than persons in other groups can, thus, be considered in terms of Cloward and Ohlin's concept of the "differential distribution of illegitimate opportunities".⁸⁶ It should be noted, however, that availability is a necessary but not a sufficient condition for either initial or dependent use, as many of those who are exposed to illicit opiates do not take the opportunity to use them.

Many studies have found that initial use of heroin almost always occurs in a peer group setting involving a person or persons—almost always friends—who are already using the drug.^{27, 79, 121, 125, 171, 274, 310, 365} While it is not clear to what extent "peer group pressure" is involved in this initiation, it appears that heroin-using friends play an important role in arousing and satisfying a non-user's curiosity about the drug, in explaining its effects in favourable terms and in instructing them in the techniques of administration.^{78, 121, 276, 333, 365}

The role of friends in introducing non-users to the use of opiates is further described in de Alarcon's study of the diffusion of heroin use in Crawley, an English new town close to London, in the mid-1960s.¹⁰⁴ De Alarcon identified three stages in the process whereby heroin use spread in Crawley. First he identified three Crawley residents who, between 1962 and 1965 experimented with heroin, and in some cases became dependent on it while living elsewhere. Second, two individuals, one from the first group and one from outside Crawley, introduced seven Crawley residents to the drug during 1965 and early 1966. From these sources, use spread to a further 38

Crawley young people during 1966 and 1967. De Alarcon identified a further eight users in Crawley who began using heroin during 1966 or 1967, who could not be shown to have been introduced from this network. In summary de Alarcon states:

... it appears that heroin abuse was introduced to Crawley by local boys who had acquired the habit whilst visiting or living in another town. They then spread the habit among their peers. In every case between the initiators and the initiated there had been a long-standing or current link of common school and neighbourhood, or common haunts of amusement.¹⁰⁴

De Alarcon's findings about the stages of the diffusion of heroin use in a community have been confirmed in a replicatory study conducted in a Detroit suburb in early 1970.²¹⁹ It appears, then, that the kind of friends an individual has is an important determinant of his eventual decision about whether or not to try heroin.¹⁷¹ Unfortunately, the factors which determine self-selection of and admission to various friendship-groups have not been adequately explored.¹⁷⁹ It is clear, however, that heroin use is often only part of a complex of delinquent activities and attitudes.

Continued use of opiates depends on both continued availability and, usually, continuing peer group reinforcement of use. The supposed euphoric effects of heroin have also been posited as a factor in the continuing use of this drug, although its role in the maintenance of use and dependence is a matter of some dispute.^{111, 175, 224, 403} Double-blind studies of the subjective effects of opiates have found very few subjects who report feelings of euphoria after initial use.^{212, 387} Euphoria may be, to some extent, a conditioned or learned response to opiate use rather than a universal psychopharmacological effect of the drug.

Continued use of opiate narcotics, at frequent intervals over a varying period of time, will almost invariably result in physical dependence on the drug. The concept of "dependence" (or "addiction") is more fully developed in Appendix A.1 *Introduction* and A.2 *Opiate Narcotics and Their Effects*, but, at this point, it is important to note that dependence on opiate narcotics is operationally defined in terms of the "withdrawal symptoms" that result from a termination of opiate narcotic administration. Lindesmith has argued that becoming an addict is dependent on the user learning to recognize these withdrawal symptoms (which are subject to various interpretations) as a consequence of a lack of opiates in his body, and consciously deciding to alleviate his condition by re-administering the drug and, thereby, avoiding further withdrawal distress.²²⁴ The specific dynamics of this process, and its physical, psychological and social consequences, are also reviewed in some detail in Appendix C *Extent and Patterns of Drug Use*.

Theories concerned with the causes of dependence on opiate narcotics can generally be divided into two schools of thought: those that deal with

individual characteristics of the user (be these biological or psychological), and those that direct their attention to social or social-psychological factors that increase the likelihood of dependence on these drugs.

INDIVIDUAL FACTORS

Some theorists have suggested that certain individuals are genetically or metabolically predisposed to opiate dependence. Research with animals has found that a "liability to morphine addiction can be bred in rats",²⁷⁹ and that rhesus monkeys display individual differences in their desire to self-administer morphine.⁸² Dole and Nyswander theorize that some persons are neurologically susceptible to the use of opiate narcotics and that it is these persons who are most at risk to dependence on heroin or other opium-related drugs.¹¹¹ Dole also suggests that the sustained use of opiates may produce a permanent "hunger" for opiate narcotic drugs.¹¹⁰ Based on experimental studies with animals, he has stated that,

Months after withdrawal of narcotic drugs, previously addicted animals will show a drive to ingestion of narcotic drugs. If human beings are similar to rats in their pharmacological response to narcotic drugs—as seems likely—then exposure to narcotic drugs in humans also leaves a pharmacological residue . . . My opinion is that a heavy exposure to heroin induces . . . metabolic changes.¹¹⁰

Most individual-factor theories of opiate dependence are psychiatric or psychoanalytic in origin, and rest on the assumption that persons who become dependent suffer from some psychological or personality malfunction or inadequacy. The psychoanalytic theories of addiction originated with Freud's suggestion in 1897 that drug dependence was a substitute for sexuality.¹¹ This theme was adopted and further developed by numerous other psychoanalysts and psychiatrically oriented writers.^{307, 410} We will not attempt to survey this extensive literature, which is reviewed elsewhere, but only mention a few of the more important contributions.^{11, 97, 327, 422} Briefly these include notions of oral fixation,³⁰⁶ an "archaic oral longing",¹²⁴ and regression from genital sexuality to infantile or more primitive stages of development.^{124, 410} The role of depression has been noted as an immediate precipitating factor,³⁰⁵ and the difficulties of dealing with sex and aggressive drives, in adolescence particularly, have also been cited as more immediate precipitating circumstances.⁴²⁵ While a fair amount of evidence has been amassed to support some of these theories, most of this, in our view, does not stand up to critical assessment.

Among the common clinical diagnoses noted are those that conceive of addicts as psychopathically predisposed,^{123, 196, 292} psychoneurotic,^{122, 123, 195, 196, 292} psychotic with latent schizoid tendencies,^{122, 196} immature,^{19, 77, 99, 194} or having an inebriate^{195, 196, 292} or inadequate personality.^{194, 246, 263, 286, 293}

Unfortunately, most of the studies from which these psychopathological diagnoses derive are the result of clinical observations which have not been empirically tested, thus, limiting our confidence in their conclusions. Jamison, in reviewing the problems associated with this type of theorization, has noted four major types of "imperfections in design".¹⁷⁹ The first problem is that clinical evaluations of addicts are conducted on an *ex post facto* basis, after they have been dependent for a period of time, thus making it extremely difficult, if not impossible, to determine whether a personality maladjustment was a cause of opiate dependence or an effect of this dependence and its associated life style. Related to this is the problem of attributing causative value to a diagnosed psychopathic condition which may very well have been a post-dependence consequence of extensive hospitalization or incarceration. Hill and associates, for example, found that institutionalized addicts were, on the average, more psychopathic (as measured by the MMPI test) than members of the non-dependent, general population, but were no more psychopathic than institutionalized alcoholics or prison inmates.¹⁶¹ A third problem is that "the pre-established expectations of the interviewing psychiatrists . . . bring into the evaluation a 'set' or complex of stereotypic notions which are likely to bias the results in a predictable direction"—particularly since there have been no controlled studies in which the clinical investigator is unaware of whether or not his patients are dependent on opiates.¹⁷⁹ And finally, the almost universal lack of standardized, objective measures, the use of vague diagnostic categories to describe psychological conditions (for example, "inadequate personality" or "inebriate personality"), and the lack of operational definitions of the explanatory concepts (which, in fact, in many cases cannot be objectively defined or operationalized) has made it difficult, if not impossible, to replicate these studies or compare their results.

While these methodological problems render it impossible to evaluate the reliability or validity of investigations of this type, it is useful to briefly review some of the more widely accepted theories since they represent important hypotheses about the causes of opiate dependence which, in some cases, warrant more sophisticated research in the future.

One type of theory sees opiate dependence as an escapist or retreatist response to psychologically stressful situations. It is suggested that persons anticipating failure may resort to opiate narcotic use as a means of coping with this situation, and then use their dependence to rationalize their inability to succeed in a legitimate career, thus preserving their self-esteem.^{77, 133, 311, 312, 347} Others maintain that heroin dependents are unable or unwilling to confront the prospect of maturation and, consequently, have escaped into addiction as a means of delaying this process.^{19, 77, 194, 415} And finally, a third theoretical position suggests that adolescents who are unable to assume socially prescribed sex roles may use heroin to escape from the psychological and social difficulties that this situation produces.^{77, 133, 175, 307}

Another psychologically oriented approach to the causes of dependence sees addicts as persons who use opiates either to suppress their inner feelings

of hostility or rage,^{19, 414} or to relieve their frustrations for which they are presumed to have a low level of tolerance.^{133, 246} Somewhat related are other theories which conceive of heroin dependence as one manifestation of an antisocial psychopathology. Addicts are viewed as being resentful of both authority figures and society generally, and as using heroin as a rebellious or defiant response to this resentment.^{19, 161, 263}

The "inadequate personality" theories suggest that opiate narcotic dependents have a weak, unstable, passive or underdeveloped personality structure, and that heroin serves a compensatory function in regard to these inadequacies.^{195, 246, 263, 286, 293} Unfortunately, however, "inadequacy" is rarely defined with a sufficient degree of precision to permit a useful comparison of these studies, and, as with most clinical research, most of these diagnoses are based on psychiatric interviews without benefit of control groups or objective methods of evaluation.

Generally speaking, these theories suggest that a diverse range of psychological variables may be responsible for dependence on opiates. Several of the authors of these theories have proposed that there is a dependence- or "addiction-prone" personality type. However, two carefully conducted Canadian studies indicate that heroin users cannot be characterized as having an addiction-prone personality insofar as they do not differ significantly from non-users who share similar social and criminal histories. In a study of dependent and non-dependent prisoners in British Columbia, Stevenson and his associates found that although heroin users may have been slightly less stable, objective and purposeful than other prisoners, their personality traits resemble those of non-using prisoners more than they differed from them.³⁶⁵ They found few actual psychiatric disorders among the heroin dependent prisoners and concluded that the "tendency to classify addicts in various psychiatric categories is, in our opinion, unwarranted. Addicts are basically ordinary people...".

Gendreau and Gendreau,¹³² in an attempt to provide a methodologically sophisticated answer to the question of whether or not there is an addiction-prone personality, carefully compared Canadian heroin dependents with a control group matched for age, intelligence, socio-economic background, criminal experience and opportunity for drug use, and found that the two groups did not significantly differ on the twelve personality scales of the MMPI. This result led them to reject the concept of an addiction-prone personality and to suspect that improper sampling and matching techniques were responsible for any differences that emerged in earlier studies. Nyswander, reviewing all efforts to discover a personality type predisposed to opiate use, concluded that dependence may exist within any type of psychic organization.²⁸⁴ It seems, therefore, that the attempts to identify the addiction-prone personality have met with no more success than those directed toward finding the "alcoholic personality".⁶⁴

SOCIAL FACTORS

Several Canadian studies have attempted to determine those social and social-psychological characteristics that differentiate heroin dependents from non-dependents. The Stevenson study discovered no differences between heroin-using and non-using prisoners when they were compared on such variables as their childhood and family life, their sexual history and behaviour (with the exception of female heroin users who were more likely to be prostitutes) or their cultural attitudes and beliefs.³⁶⁵ They had similar attitudes to religion and superstitious ideas, and shared a delinquent orientation to crime, prison and the police. In a closely related study, these same investigators found that the sole variable that distinguished addicts from their non-dependent siblings was a friendly, close and continuous relationship with opiate-using delinquents.³⁶⁵

In another British Columbia study, Murphy found no differences between matched dependent delinquents and non-dependent non-delinquents on such factors as ethnic background, religious affiliation, fathers' or mothers' education, absence of the father from the family, whether or not their mothers worked, or their vocational or educational ambitions.²⁷⁵ A more extensive discussion of social characteristics of heroin users is presented in Appendix C.3 *Characteristics of Users*.

With a few exceptions, sociological investigation of the causes of opiate dependence did not occur until the 1950s. One of the earliest theories focussed on the frustration of the black male in the urban ghettos of the United States.¹²⁵ A later version, along similar theoretical lines, saw black drug use and dependence as an inward turning of rage, which could not be directed to what was said to be its proper source—the privileged whites.¹⁰⁰ The effect of race, through its association with reduced economic opportunity, is seen also in an explanation of heroin dependence among Puerto Ricans in New York.³⁰²

Several researchers, employing a revised concept of 'anomie' (a discrepancy between a society's cultural goals, such as material success, and the socially prescribed means of achieving those goals), have shifted the emphasis from race to class.^{85, 86, 262} Merton was the first to specifically view drug use and dependence as a "retreatist" adaptation to an anomic society.²⁶² For Merton, the American social structure tends to restrict the legitimate opportunities to attain cultural success goals to members of the middle and upper classes. He argues that those in the lower classes who are unable or unwilling to employ illegitimate means (for example, criminal enterprise) to obtain these same material ends may renounce both the prescribed goals and means, and "retreat" or escape from the personal frustrations imposed by this situation through alcoholism, mental illness, career vagrancy or opiate dependence. A development of this theory by Cloward and Ohlin allows for several means of reaching this retreatist response.^{85, 86} An individual may have a too deeply

entrenched moral code to indulge in criminal activities, or he may lack the necessary capabilities or references and introductions to join a successful criminal gang, or he may simply have been inept in his early criminal exploits. Drug use may then be viewed as a response to "double failure"—in both the legitimate and the illegitimate worlds.

These anomie-type explanations have been generally discredited as a useful explanatory orientation to most cases of opiate dependence. Lindesmith and Gagnon point out that the distribution of opiate narcotics users over most of American history is contrary to that which would hold under any anomie theory.²²⁷ Prior to World War I, users were disproportionately respectable, non-deprived, middle-class women. Regarding the double failure hypothesis, there is no lack of evidence that heroin users, far from failing at crime and abandoning it, often become persistent and successful thieves.^{78, 273} In fact, considering the exorbitant price of heroin in the illicit market and the high risk of arrest, a heroin dependent must be an agile and diligent criminal entrepreneur simply in order to maintain his habit.^{303, 370}

Despite these reservations, a general theory of economic deprivation, in some form or other, has had more popular acceptance than any other theoretical approach, as well as having strong acceptance in the academic and treatment communities. The lower-class image of the opiate user portrayed in the media seems to be an almost universally accepted one. Even people who subscribe to a notion of emotional disturbance or inadequate family background are likely to incorporate economic deprivation or low status of some sort into their image of the user. However, a critical examination of the Canadian, British and American data which can be brought to bear on the subject fails to support this view.

For example, studies of both treatment and imprisoned populations of heroin dependents in British Columbia have found that the social class origins of these persons is not significantly different from that of the general Canadian population.^{157, 365} Similarly, British studies of opiate users report that the socio-economic status distribution of their parents was approximately that of the general population—with the exception that persons of higher social class origins were slightly over-represented in some samples.^{45, 152, 366, 423} This is in direct contradiction to the economic deprivation theory. In the United States, opiate users and dependents come disproportionately from ethnic groups that are disproportionately lower class (blacks, Mexicans and Puerto Ricans), which would superficially support the economic deprivation theory. There is no evidence, however, to suggest that, within these groups, the worst off are most likely to become users, and there is some evidence to the contrary. Studies in St. Louis, Missouri,³¹⁸ Chicago,^{2, 99} and New York,^{78, 234} and among persons who had been patients at the U.S. federal treatment facility in Lexington, Kentucky,^{105, 286} have found that the social class origin of these persons does not differ significantly from that of the general population or, in other cases, the social class distribution of

specific ethnic populations involved in the study. Consequently, it appears that socio-economic status is not clearly or directly related to opiate dependence, and the theory of economic deprivation must thus be discarded as a universal explanation of dependence.

One of the few theories to combine social-psychological and social factors explicitly may be found in the *Road to H* study by Chein and associates.⁷⁸ This theory also deals with the stages of opiate use from experimentation through occasional and regular use or dependence. The investigators found that basic demographic characteristics were the major determinants of exposure to heroin: young males in poor, non-white, high delinquency areas in New York City (where the study was conducted) were at the greatest risk. However, within high availability areas, users could be distinguished from non-users by the age they dropped out of school and their non-involvement in legitimate school and extracurricular activities. They also tended to belong to less cohesive families, were less likely to have someone to go to for help with personal problems (particularly a father or adult male), and appeared to be subjected to extremes of treatment as children (over-indulgence or excessive frustration). The authors of this study concluded that:

... the one factor which we have found to be distinctly related to drug use and apparently unrelated to delinquency per se is the experience of living with a relatively cohesive family. The users have, on the average, been more deprived in this respect, than the non users.⁷⁹

Disturbed relations between children and parents and between parents have been cited as important factors in the background of opiate narcotic dependents by several other American and Canadian researchers as well.^{73, 157, 311, 385, 380, 384}

A more recent study has confirmed many of the findings of the *Road to H*. Ahmed studied juvenile drug users from the lower socio-economic classes in Oakland, California, and found that they did not constitute a homogeneous group.⁵ He identified four types of juvenile users and discovered that drug use had a different function and meaning for each of them:

They ... differ in their orientation towards drug use before using [drugs] —in the way they were induced into its use, in their general and daily activities, in their conventional-unconventional orientations, in their future perspective, and finally in the nature of their interpersonal relationships.⁵

One type of unconventionally-oriented juvenile was similar to the type described as a "player" in another study.⁵² For these adolescents, relationships with representatives of the conventional world were almost non-existent. They usually had been brought up by unconventional adults in a milieu which fostered unconventional standards. For them, drug use was an integral part of a larger complex of unconventional activities and 'hustles': pimping, prostitution, robbery, etc. It became evident to the investigator that these adoles-

cents were most at risk to access to heroin-using circles and to eventually using, and perhaps becoming dependent on, opiate narcotics.⁵

It appears that once an individual becomes physically dependent on heroin, his continued use of the drug may well be as much a function of certain social and cultural influences as it is a result of the simple desire to avoid the symptoms of opiate withdrawal. Involvement in a heroin-using subculture (which is almost obligatory for all opiate dependents except those very few who are independently wealthy or members of the medical and paramedical professions) is said to provide the individual with a positive self-image and identity, a sophisticated set of justifications for his activities, and an education in the skills and strategies required to financially maintain a 'habit', secure drugs, avoid detection and arrest, and preserve his health.^{8, 84, 121, 309, 323, 324, 404} Heroin use thus becomes a totally involving, subjectively meaningful, and self-reinforcing way of life. In this regard, Preble and Casey have observed that:

Heroin use today . . . provides a motivation and rationale for the pursuit of a meaningful life, albeit a socially deviant one. The activities these individuals engage in and the relationships they have in the course of their quest for heroin are far more important than the minimal analgesic and euphoric effects of the small amounts of heroin available to them. If they can be said to be addicted, it is not so much to heroin as to the entire career of the heroin user.⁸⁰³

CONCLUSION

The material discussed so far has shown that persons dependent on opiate narcotics do not radically differ on basic dimensions of personality or attitudes from non-users, especially those who are delinquent. Thus it appears that the reasons why some persons become dependent and others do not must be sought elsewhere.²⁷⁵

A combination of social circumstances and chance factors appears to be the best explanation of why heroin use is begun. Typically, the eventual user does poorly at school and loses interest in school work.^{14, 157, 160, 213, 314, 318, 384, 423} He appears to have the same aspirations as the non-user, but due to a lack of skills is much less likely to achieve his goals.²⁷⁵ The fact that he often has greater intelligence than the non-user makes this lack of achievement especially frustrating.³⁸⁴ Because of his want of education and occupational experience, he is usually not able to get a satisfactory job and is frequently unemployed. Consequently, he is likely to spend much of his time hanging around the street, perhaps participating in delinquent activities, and usually coming into increasing contact with delinquents and heroin users. Friendships with the latter provide a source of supply and arouse his interest in the drug.

Friendship with heroin users seems to be the crucial precursor to heroin use.³⁶⁵ Influence of friends and curiosity (the latter undoubtedly derived from the former) are the most commonly cited reasons for heroin initiation.⁵⁸

Males are likely to be initiated in the presence of one or more of their peers, whereas females more often use the drug for the first time with a lover or husband.¹¹³

Chance factors are accorded great importance by the American authority Alfred Lindesmith in his explanation of use in the United States.²²³ He argues that the desire to try heroin seems to be more motivated by a lack of other activities and gratification in other areas of life than a seeking out of a solution for any particular problem. The reasons given by opiate narcotics users for initial use are usually not very esoteric: curiosity, as generated by using friends and acquaintances, and a desire for new experience. These are essentially the same motives reported for the voluntary, non-medical use of any drug.

The would-be user becomes increasingly involved with people to whom opiate use is important and less involved with those in the 'straight' world,^{121, 213} although even after becoming dependent he is likely to maintain some kind of contact with members of conventional society.¹⁵⁷ If arrested for a criminal offence, he usually meets users in prison and often establishes contact with dealers. Many have reported that they first used heroin while in prison or jail.^{52, 272} In this case, the individual gains a reputation as a user which facilitates his access to opiate narcotics after his release.²⁷² Once he has used these drugs, there is less reluctance on the part of dealers to accept him as a customer. If the first prison experience comes after heroin use on the street, the time in prison still serves the same function of facilitating contact with other users and dealers.³⁹⁰

A new user usually takes the drug on an occasional basis for a while, for instance on weekends, with use being stepped up when particular crises or social situations encourage it. Some continue on an occasional basis for years before becoming regular users, and some never become dependent. It is not unreasonable to assume that it is at this stage, between occasional use and dependence, that individual personality factors are most likely to come into play. However, it seems that occupational circumstances and interpersonal relationships also account for some becoming dependent and others stopping or continuing at only an occasional level.³³² Those lacking these important conventional sources of satisfaction and ways of spending time seem to be the ones who use more frequently, until they must use on a daily basis to avoid withdrawal distress.

Opportunities for conventional involvements are determined by certain social and personality characteristics, but chance factors play an important role. Being caught and charged for a minor property offence has a large element of chance; most reported offences of this kind do not result in arrest or conviction. Living in a poor neighbourhood and being unemployed and frequently 'on the street' make one more liable to investigation. And, for those who are caught, these same factors increase the likelihood of being charged, convicted and given a stiff sentence.

The prison experience obviously limits opportunities for involvement in the 'straight' world during incarceration and, due to the stigma of being an 'ex-con', may indeed continue long after release. The prison experience, of course, at the same time increases contacts with the illegitimate world. Both of these processes are prone to make continued heroin use more likely.

Later phases of heroin use, the cycles of attempted abstinence and relapse, seem to involve the same kind of circumstances. Most people dependent on heroin make a number of attempts to abstain voluntarily and, of course, in prison are more or less forced to abstain. Abstinence is most likely for the person who marries, gets a steady job, makes non-using friends, breaks off contact with users, and moves into a community in which heroin is relatively unavailable.^{105, 157, 384, 391} The chances of these circumstances occurring, however, are affected by the individual's background characteristics insofar as the person with the better school and job history is more likely to obtain steady and gratifying employment than the person with a less adequate educational and occupational history.

This evidence suggests that a career of heroin dependence is primarily determined by social factors and a lack of viable and satisfying life alternatives. As with other drugs, friendship patterns strongly affect the chances of initiation into heroin use, but after this, some users control their consumption level or stop using altogether, while others go on to daily use, dependence, and a life style dominated by heroin use.³³² The most crucial period appears to occur between initiation and dependence, and although the causal role of psychological variables is unclear, it may be assumed that it is at this stage that they are most likely to have influence. Few heroin users, however, are seriously psychologically disturbed and, as the Stevenson study observed, opiate dependents are characterized more by an absence of healthy resources than by the presence of demonstrable pathology.³⁶⁵

D.3 AMPHETAMINES AND AMPHETAMINE-LIKE DRUGS

This category of drugs principally includes amphetamine, methamphetamine and amphetamine-like drugs such as phenmetrazine and methamphetamine. Those who use these drugs non-medically tend to fall into three categories. First, those who use these drugs orally, on a rather regular basis, in small to moderate doses, without prescription or as a result of 'prescription shopping', and usually to elevate mood or relieve fatigue or depression. Second, those who use these drugs orally in moderate to relatively high doses, on an occasional to regular basis, typically for recreational purposes. The first category tends to be drawn from the adult middle classes and is not usually associated with illicit drug experiences—most often amphetamine use will have begun for a medically authorized purpose. The second category is largely composed of younger people, many of whom will have had experience with other

illicit drugs. The third category contains a population who take amphetamine or methamphetamine (known in this context as 'speed') by intravenous injection, at high-dose levels and usually on a chronic basis (see Appendix C.2 *Extent of Use*, "Amphetamines and Amphetamine-Like Drugs"). It is this latter category which has received the greatest amount of attention in the psychiatric, psychological and sociological literature and in the popular press, although numerically it is by far the smallest of the three categories. To a considerable extent, the motivational patterns and factors associated with the use of amphetamines and amphetamine-like drugs (hereafter referred to as 'amphetamines') are similar for members of all of these categories, although some important differences will be noted.

Without doubt the widespread use of these drugs has been facilitated by their ready availability. While both Canada and the United States have recently introduced tighter controls on the legal distribution of these drugs, during the 1950s and '60s legitimately manufactured amphetamines were easily available to almost anyone who expressed an interest in obtaining them. Overproduction and overprescribing characterized the licit market and, for many oral users, the transition from medical to non-medical use was a function of both their introduction to the drug in a therapeutic context and their easy access to additional amphetamine supplies (either through 'prescription shopping' or diversionary channels) once an appreciation of the drug's stimulating effects or a compulsive habit had evolved. Similarly, the development of the first intravenous speed-using communities was abetted by both the overproduction and lax prescribing of injectable methamphetamine, and the relative ease with which methamphetamine could be illicitly produced.³⁵⁸ These matters are discussed in Appendix B.3 *Amphetamines and Amphetamine-Like Drugs*, "Legal Sources and Illegal Distribution".

The motivations for initial use of amphetamines are significantly different from those factors that affect the continued use of these drugs. First oral use of amphetamines most often occurs within a medical context, the amphetamines having been obtained on prescription. Alternatively, amphetamines may be used initially without benefit of prescription, on the advice or at the suggestion of friends. In most cases this use will be of an instrumental or functional nature, such as facilitating the completion of arduous tasks, providing needed energy, curbing appetite, or counteracting fatigue or depression. In other instances the motivation for first non-medical use of amphetamines is similar to the motivation for first non-medical use of most psychotropic substances: simple curiosity precipitated by the favourable comments of friends and acquaintances, and the desire for a new and euphoric experience.^{144, 145, 156, 220}

The initial intravenous amphetamine experience is usually engendered by a more complex set of factors than those affecting first oral use. Robbins has suggested four possible avenues to the regular intravenous injection of these drugs.³¹⁶ The first of these begins with the moderate oral consumption of stimulants to combat depression, fatigue or obesity. As tolerance and

psychological dependence develop, the user steadily increases his dosage until he shifts to intravenous administration. Although almost all 'speeders' have previously used amphetamines orally, it appears highly unlikely that this progression would occur in the absence of some involvement with intravenous users. As Robbins himself notes, "housewives habituated to amphetamine pills . . . do not graduate to injection because they have no contact with a deviant drug culture."³¹⁶

A second, and more plausible, avenue suggested by Robbins involves the merging of oral amphetamine consumption and hallucinogenic drug use. As he puts it:

A habituated user of [pep] pills [may] progress to intravenous usage if he has contacts within an underground drug scene (often dominated by psychedelics) College students abusing amphetamines are more likely [than most oral amphetamine users] to progress from oral to intravenous abuse by virtue of their greater proximity to an underground drug scene.³¹⁶

Both of these initiation routes include the notion of graduation through oral to intravenous use of amphetamines. While both are theoretically possible, only the latter has been encountered by Commission investigators^{144, 145} and has been well documented by other sources.^{94, 198}

Robbins' third avenue of entry is through the prior intravenous use of heroin.³¹⁶ Several American studies have noted that heroin users will occasionally inject amphetamines when opiates are unobtainable, too costly or "too likely to invite prosecution".^{126, 198, 308} Heroin users may also use amphetamines to facilitate their criminal 'hustles' or to avoid the risk of opiate dependence through the rotation of heroin and methamphetamine, or by switching to the exclusive use of speed.^{70, 126, 308} Commission researchers and other Canadian investigators have discovered only a few speeders with a prior history of heroin use or dependence, and these were mainly Americans who could not secure opiate supplies in Canada. Involvement with opiates, when it does occur, has generally been found to follow rather than precede the intravenous use of amphetamines.^{94, 241, 287, 288}

Robbins' final intravenous amphetamine initiation route is through the prior use of hallucinogenic drugs.³¹⁶ This is the pattern that has been most often observed in Canada. Robbins, Pittel and Hofer, and several other researchers, suggest that compulsive methamphetamine users are primarily recruited from among those persons who have been depressed, disillusioned, or disoriented by their use of hallucinogens.^{231, 295, 316, 346} Speed use, then, since it provides sensations of enhanced self-assurance and competence, is seen as a reaction to repeatedly unpleasant hallucinogen experiences. As Pittel and Hofer describe this transition:

. . . psychedelic drugs [are used] . . . to compensate for certain long-standing impairments in ego functioning . . . [These] psychedelic drug experiences lead to further impairment of ego functions and to an even greater inability to

resolve psychological problems It is at this point that the transition to amphetamines may occur.

The typical rationalization for this transition is that amphetamines provide needed energy and motivation for constructive problem-solving Other desired effects of amphetamines are their ability to counteract increasing anxiety and depression and the sense of pervasive emptiness that results from continued failure to deal with persisting or exacerbated personal problems.²⁰⁶

Nearly all Canadian intravenous amphetamine users studied by the Commission had a history of previous hallucinogen consumption and many of them claim to have been depressed when they initially injected amphetamine.¹⁴⁵ A psychiatric study of seven female speeders in Toronto concluded that "the compulsive use of speed in all cases was preceded by a depressive state . . .".²³¹ Another Toronto study described these drug users as "usually chronically depressed",³⁷⁶ and the authors of a third Toronto study state that "there is no doubt that a very high percentage (perhaps 75 per cent) of the amphetamine users were depressed."²²⁰

Depression has often been cited as a precipitating factor in both the initial and continued non-medical oral—and intravenous—use of amphetamines. However, the sources of the depression have not yet been ascertained. Housewives, particularly, have often been reported to have used amphetamines, sometimes to the point of habituation, in order to counteract feelings of depression.^{146, 151, 189, 190} Depression also plays an important intervening role in the 'speed cycle' which typifies patterns of intravenous methamphetamine use.

There have been several important studies of the relationship between psychological problems and the use of amphetamines. As with alcohol and the opiate narcotics, it has been suggested that there is a particular type of personality that is predisposed to the use of these drugs. However, before reviewing the information pertaining to this hypothesis, it is crucial to note, once again, that the relevant data are primarily based on clinical studies (involving unrepresentative samples and without control groups or objective measures) and surveys of volunteer respondents whose social and psychological characteristics may or may not resemble those of the total amphetamine-using population. Furthermore, these studies are often based on populations institutionalized in hospitals or jails and, consequently, are likely to reflect the more extreme elements of whatever using group is being considered. Finally, in almost all cases, it is uncertain whether diagnosed psychological disorders have preceded the use of amphetamines (and, therefore, may be causally linked to their use), or follow the use of these drugs (thus indicating the possibility of a psychopharmacological effect or the influence of life in a speed-using community).

Beamish and Kiloh described a series of oral amphetamine-using adult patients who showed evidence of psychopathic personality and had a high incidence of use of other drugs.⁴¹ Furthermore, these patients had displayed

symptoms of abnormal personality prior to their use of amphetamines. Studies by Bell and Trethowan and Hampton also report the existence of underlying personality disorders among oral users of amphetamines, ranging from neurotic or prepsychotic traits to paranoid schizophrenia, psychopathic personality and manic-depression.^{43, 44, 151} However, in Hampton's study no specific psychological disorder or complex of disorders seemed to consistently characterize amphetamine users.¹⁵¹ Cockett and Marks found that among a group of young English offenders, the amphetamine users scored significantly higher on personality tests measuring hostility, guilt and self-punitive attitudes than non-amphetamine users from similar backgrounds.⁸⁷

Hekimian and Gershon studied the psychiatric characteristics of 112 randomly selected non-medical drug users admitted to New York's Bellevue Hospital in 1967.¹⁵⁶ Of the 22 oral or intravenous amphetamine users, nine were diagnosed prior to their initial use of amphetamines as suffering from schizophrenia, six displayed neurotic patterns and four were described as sociopathic. These patients, however, likely represent only the more extreme types of amphetamine users as their mean duration of use was 3.4 years, their mean daily dose was 780 milligrams, and all "were psychotic, in a toxic condition, or came for drug withdrawal" when admitted to the hospital. Levine, *et al.* interviewed a non-random, volunteer sample of 218 speed users in Toronto in 1971.²²⁰ Only 19 per cent were found to be free of psychiatric disturbance. Eleven per cent displayed psychotic symptoms and between one-third and one-half of the sample showed evidence of personality disorders. The authors identified four basic themes in the lives of their subjects: *unhappiness*, as manifested in feelings of depression, existential dissatisfaction and anxiety; *escapism* (via drugs) from the unpleasant reality of their lives; *communality*, an ethos of sharing and antimaterialism which appeared to be related to their need for company, and *social disintegration*, as evidenced by their disproportionately high rates of broken or unstable homes, parental drug use and crimino-legal involvement as well as poor academic and occupational records. As with most other studies of the psychological characteristics of drug users, however, it is impossible to determine whether the diagnosed psychiatric disorders were either a cause or effect of the use of amphetamines.

Connell, based on his clinical investigations of English amphetamine users and extensive reviews of other studies, has stated that, "persons likely to become amphetamine addicts cannot easily be distinguished from those who are not",⁹⁰ and,

although both adult and adolescent drug addicts are likely to be unstable personalities before taking the drug it is by no means certain that individuals with normal previous personalities are free from the risk of becoming addicted to amphetamines or other drugs.⁸⁹

However, Levine and his associates, on the basis of their study of Toronto speeders, conclude that "it appears that those youngsters who are attracted

to these dangerous chemicals [i.e., amphetamines], as opposed to a drug such as cannabis, are emotionally vulnerable *a priori*."²²⁰ It seems then, as is the case with alcohol and the opiate narcotics, that there is conflicting evidence regarding the hypothesis that a particular personality structure predisposes certain individuals to either occasional or compulsive use of amphetamines. The possibility, however, remains, and warrants further investigation.

Social and social-psychological factors have also been considered as contributing causes to the use of amphetamines, particularly intravenous speed use. One theory holds that amphetamines are chosen over other drugs (notably the hallucinogens) in accordance with the broad values and goals of the user's social class.^{101, 357, 421} Briefly, it is argued that the typical speed user is of working-class origin and prefers amphetamines to other drugs for their immediately pleasurable physical effects. The middle-class young person, by contrast, seeks greater self-understanding and other insights over idle pleasure. His drug use, then, is motivated by and consistent with the values with which he has been brought up—self-improvement and the pursuit of knowledge. Unfortunately, however, this working-class choice hypothesis appears never to have been empirically substantiated. Where class differences between amphetamine and hallucinogen users have been referred to, no data have been reported, and the assertion appears to have been based only on casual observations.^{101, 357} Data collected subsequent to these assertions, in the same area (San Francisco), showed no class differences among multiple drug users, between those who used amphetamines and those who did not.²⁹⁵ These data, however, were of volunteer subjects, and did not include very heavy users. Heavy users may differ in social class background from more moderate users, although Canadian evidence would suggest that this is not the case.⁹⁴ Data from two Toronto studies further contradict the class-values hypothesis, with findings that about 80 per cent of speed users come from middle- or upper-class homes.^{94, 220} Similarly, a British study found young people from upper-class homes (as indicated by the type of school they attended) over-represented in its samples of methamphetamine users drawn from four different settings in London.¹⁵³ Indeed, the only available hard evidence which indicates that working-class people are more likely to use amphetamines is in Swedish studies of incarcerated populations.³⁷¹

Most investigations of social and social-psychological characteristics that may be associated with speed use have concentrated on the social class origins of the users. However, Anderson, in a clinical investigation of Hamilton speeders, has observed that many of his subjects had experienced personal, family or legal trouble prior to their use of drugs, felt socially or personally inadequate, had an alcoholic parent, and had few close friends during their formative years.¹² These observations suggest important hypotheses that should be empirically tested in a methodologically sophisticated fashion. However, from a review of the current literature, it appears that social characteristics, generally, have little predictive value as regards the likelihood of

an individual eventually beginning speed use. As Roger Smith, in his analysis of the San Francisco methamphetamine-using subculture, has noted:

It appears that the many individual variables which predate involvement in the drug scene are less important in determining the direction which drug use will take than such factors as the prevailing community attitudes, peer sanctions imposed on certain kinds of behavior, drug availability, subjective interpretations of the drug experience, the quality of social interaction, and the structure of the illicit drug marketplace.³⁵⁸

Some of those factors and conditions which affect the continued and chronic intravenous use of speed are sufficiently complex to warrant special discussion.

While a very few individuals have an unpleasant first experience with speed, most report that their initial amphetamine injection was a highly exhilarating if not an ecstatic experience.³⁵⁹ It is this immediate physical gratification that distinguishes the initial intravenous use of amphetamine from that of heroin, and may prompt the repeated use of the drug. Those who conceive of their first intravenous amphetamine experience as pleasurable, particularly those who remain in close physical proximity to veteran speeders, are likely to engage in further experimental use of the drug. At this stage a user's consumption pattern can be described as intermittent. Abstinent periods of days or weeks may intervene between brief 'sprees' during which relatively small doses of amphetamine are injected a few times over one to two days.¹⁹⁷ Speeders usually report that this occasional use elicits feelings of confidence, optimism, verbal facility, insight, increased ability to communicate with others, improved self-image, relief of fatigue, and general physical and mental well-being—all which serve to reinforce the pattern of continued use of the drug.^{94, 358, 359}

Some speed users stabilize their consumption at this level, becoming 'weekenders' who indulge in episodic amphetamine use. This pattern, however, is difficult to maintain as the user is likely to be noticeably depressed and fatigued the day after use and may try to alleviate this condition through an additional administration of amphetamine. While this procedure will temporarily mask the physical exhaustion, it aggravates the unpleasantness of the 'come-down' when the spree is eventually terminated.

Some persons maintain their episodic use of speed or permanently discontinue use at this level of involvement. However, others—particularly those who do not have or cannot perceive of any viable life-alternatives—may advance from occasional to regular and compulsive use of amphetamines. As this process occurs, the duration of the intervals between spreeds declines and there is an increase in the frequency of injections, the length of the 'runs', and the amount of speed consumed. This progression is usually justified by the pleasure gained from use of the drug and the perceived enhancement of the user's ability to both cope with personal problems and relate to others.

A social ambiance which condones or encourages such use, estrangement from meaningful relationships outside of the speed-using community, and persistent feelings of depression or despair further contribute to this process.³⁵⁸

Throughout the course of this progression the speed user typically becomes increasingly involved in the 'speed scene' and increasingly divorced from those persons and institutions that made up his pre-speed social milieu. Eventually he may find that he is no longer able to meaningfully communicate with his earlier acquaintances and comes to identify himself as a 'speeder' or 'speed freak', and is so perceived by others. At this point, which may take anywhere from a few weeks to several months to reach, an individual is likely to be injecting very large doses of speed several times a day.

At this juncture the speeder, if he has not already done so, will usually physically join a community of 'speed freaks' who live together in 'speed houses', and adopt the life style of this group. This membership provides him with understanding and acceptance from others, a sense of belonging, and group support in times of need. However, it also serves to almost totally isolate the intravenous amphetamine user from persons in conventional society and even from non-speeding members of other drug-using subcultures.

By this stage, the continued injection of speed must be explained in terms of social as well as pharmacological factors. The lives of speeders are totally organized about the use of amphetamine; speed becomes the focus of their existence and its subjective meaning is a function of both the drug's physical and psychological effects and the speeder's almost exclusive involvement with other amphetamine users. This subcultural involvement provides the speeder with a distinct social identity and 'something to do'. For chronic speeders, there is little recreational aspect to their amphetamine use; the drug is not a 'stone' but, as in the case of heroin dependents, a way of life. The compulsive use of speed necessitates a constant schedule of collecting money (usually small amounts obtained through petty drug trafficking or other criminal 'hustles') finding and purchasing speed (i.e., 'scoring'), using the drug, and then repeating the sequence again and again until the speeder is forced to 'crash' and sleep. Upon awakening this pattern is resumed.

In almost all cases, to be a speeder is to be a member of a speed-using community. Apart from such persons as landlords, grocers, waiters, the police and non-speed-using motorcycle gang members, confirmed intravenous methamphetamine users rarely interact with anyone but other speeders. The continual use of speed is the primary condition of acceptance into and maintenance of membership in a speed-using group. Individuals who attempt to terminate, or even severely curtail, their amphetamine consumption are likely to be initially coaxed back, then ridiculed, and eventually ostracized from their group of peers. To discontinue speed use, then, is extremely difficult. This is not only because of the dependence that develops such that further injections of amphetamine are required to ward off the unpleasant

effects of withdrawal, but, even more importantly, because termination of use necessarily entails leaving one's only community of friends. While the continuance of amphetamine use during any particular 'run' is usually rationalized in terms of a desire to avoid the eventual 'crash' or 'come-down', the chronic use of speed is more a function of group involvement, subcultural pressures and the lack of any viable alternatives.

The injection of amphetamines is the primary activity engaged in by speeders. This consumption is ordinarily patterned in 'runs', periods lasting from a few days to more than a week during which the speeder rarely eats or sleeps and administers increasingly large doses of the drug, finally terminating in the 'crash'. Each injection provides a brief (five to fifteen minutes), highly pleasurable sensation, known as a 'rush' or 'flash', which is sometimes described as orgasmic. While the perceptible effects of such injections are likely to last from eight to twelve hours, additional large doses of amphetamine must be injected within three to five hours (the duration of the more positively interpreted effects) in order to forestall the unpleasantness of the inevitable come-down. Since a regular speed user rapidly develops tolerance to the drug, the dose must be increased with each injection, if at all possible, to insure continued pleasurable sensations and to avoid any feeling of physical or psychological strain. This process is likely to continue, in a relatively uninterrupted fashion, for up to two weeks. Eventually, as paranoia and hallucinations begin to escalate, the speeder terminates his run because of his desire to end the confusion, anxiety about his own sanity or physical health, the unavailability of additional amphetamine, or the lack of funds or sufficient physical mobility to purchase more of the drug.

As the final 'hit' (dose) of speed starts to lose effect the inevitable crash begins. The severity of this withdrawal is "directly related to the length of the run, the dose level, and the physical and psychological condition of the user".³⁵⁸ This phase is characterized by physical exhaustion, and extreme irritability and depression which is sometimes counteracted by the use of opiates or barbiturates. A period of sleep lasting from 12 to 36 hours ordinarily follows the termination of the drug's stimulating effects but, upon awakening, the speeder is physically weak, ravenously hungry, and may suffer from intolerable depression for several days. If available, minor tranquilizers, barbiturates, other sedative-hypnotics or heroin are often employed for self-medication at this juncture. But the most common remedy is the renewed injection of methamphetamine. As one Halifax dealer put it,

It's a vicious circle. You do speed because you're depressed and you're even more depressed after. So then you have to do more speed to overcome that depression. And so on.²⁷⁹

Thus everyday life, for many intravenous amphetamine users, is a 'speed cycle' composed of a series of amphetamine runs interrupted by periods of profound sleep and depression.

D.4 HALLUCINOGENS

The hallucinogens include a wide variety of organic and synthetic substances (see Appendix A.5 *Hallucinogens and Their Effects*), but, in this section, the discussion of factors associated with motivations for their use will be largely restricted to the most commonly used preparations: LSD, PCP and MDA, or to some combination of these drugs. Virtually all of the non-medical users of these drugs have also used cannabis, although only about one-quarter of those who have used marijuana or hashish (usually the most frequent users) have tried hallucinogens. Thus, contemporary hallucinogen use—as opposed to the ritual or sacramental use of these drugs in other cultures—must be seen in the context of North American cannabis use patterns, and, for most persons, can be considered as an extension of that use and subject to the same precipitating influences. Initial use of hallucinogens, then, can generally be viewed as a function of the availability of a source of supply and simple curiosity resulting from the enjoyment of cannabis and the comments of friends who have used hallucinogenic drugs.

Any attempt to understand the development of hallucinogen use in North American requires an historical analysis. Peyote, for example, was used by the American Plains Indians by 1870, and the use of this drug for religious purposes among North American Indians was generally established by the late 1920s.^{203, 258, 353} Mescaline was used for psychiatric purposes soon after its synthesis in 1919, and there are reports of European non-medical use as early as 1931.⁹⁵ LSD was first recognized as a hallucinogen in 1943, and non-medical use was reported in California by the mid-1950s.^{51, 166} It was not until the early or mid-1960s, however, that the use of these drugs—particularly LSD—became widespread in North America. This popularization of hallucinogens can be at least partially explained by two factors: increased availability and the arousal of popular interest in their effects.⁷

LSD was originally marketed by Sandoz Laboratories for clinical and research purposes. Experimentation with this drug (of both a medical and non-medical nature) soon resulted in published and word-of-mouth reports of its hallucinogenic effects. The public attention given to the early experiments with LSD conducted by Drs. Leary and Alpert certainly contributed to the growth of interest in this drug. The demand for the drug for non-medical use increased very sharply such that, by the time LSD was withdrawn from the licit market, the question of whether or not there was a legal pharmaceutical source was largely irrelevant; illicit laboratories were established in California in 1962 and sophisticated clandestine manufacturing and distribution networks soon followed. (See Appendix B.5 *Hallucinogens*, “Illegal Sources and Illegal Distribution”.)

INDIVIDUAL FACTORS

The popular use of hallucinogens developed too late to attract the attention of classic psychoanalytic theorists. Some clinical studies have found

users of these drugs to suffer from a variety of psychological problems, but there is no evidence that the sampled groups are representative of the total using population, and most, if not all, of the subjects have also used other drugs besides hallucinogens. One study, of subjects who had answered an advertisement in an underground paper, found that most showed evidence of personality disturbance and were poorly adjusted; no specific types of psychosis, neurosis or organic damage were, however, reported.³⁸ Heavy multiple drug users (of predominantly cannabis and the hallucinogens) have been found to show abnormalities on a number of personality scales (including psychopathy, schizophrenia and social interest) to a greater extent than non-users or users of cannabis alone.²⁴⁸ Another study, using data from psychiatric interviews of volunteer subjects, found major difficulties in the areas of sexual identification, dependency needs and aggression.³⁹⁹

A 1965 study of university students found different motives for hallucinogen use for those defined as 'stable' and 'unstable' users.¹⁹¹ The latter, who had a wide variety of psychiatric diagnoses, were said to use hallucinogens in an attempt to solve their personal problems. The stable users, on the other hand, were more likely to be motivated by curiosity and the influence of their friends. It should be noted, however, that members of the unstable group were also more likely to have had unpleasant drug experiences, and thus to have discontinued use.

Other data fail to support an individual problem theory, showing users either not to differ from non-users or to differ in respects which are not problem-related.⁵¹ One extensive study, covering 91 persons in ten different groups, found users to score in the average range on a variety of psychological tests, including indicators of psychopathology. The users were disproportionately high on esthetic and theoretical interests, and low on political and economic values.⁷⁵ In another study, users who were not psychiatric patients were compared with matched controls who had been offered LSD but had refused it.⁵¹ The LSD accepters differed from those refusing on a number of social and attitudinal indicators, most of which were not related to any individual problems. The accepters were disproportionately young, male, religious, divorced or separated, expecting a pleasurable experience from the drug, not fearful of bad effects or losing self-control, and interested in changing themselves through drug use. The accepters were, however, more dissatisfied with life than those who declined to try LSD.

The most commonly cited individual factor in regard to the use of hallucinogens is alienation. One study cites an intense need for inter-personal closeness and lack of access to meaningful affective experiences, rather than the usual psychiatric diagnoses, as the cause of use.⁵³ Similarly, college students have been said to be motivated by a need "to gain access to themselves and others".¹²⁸ One author, in attempting to explain hallucinogen use, has referred to the traditional psychiatric diagnoses of psychosis, neurosis and psychopathy, but, additionally, has noted identity crisis, made more trau-

matic by the current rapid pace of change, and the search for religious experience and esthetic appreciation in his etiological analysis.³⁷

All of the above studies share the same methodological problem: it is uncertain whether the samples used were representative of all hallucinogen users. In addition, standard psychological tests and diagnoses of young people whose orientations are toward subcultural or counter cultural values and behaviour may indicate maladjustment with regard to the dominant culture, but fail to measure what may very well be healthy integration in and adjustment to the smaller group. The final difficulty with interpretation of this psychological data revolves around the uncertainty as to whether a diagnosed pathological condition *preceded* hallucinogen use (and might, therefore, be hypothesized as a cause) or developed after use began and, consequently, may be a concomitant of a particular life style or a result of the use of LSD or other drugs. Although first use of LSD may be prompted by a desire to alter one's personality for the better, it appears that those with more serious personal problems are the least likely to persist in its use because of their greater likelihood of having unpleasant hallucinogenic experiences.¹⁹¹

SOCIAL FACTORS

Most theories which seek to explain hallucinogen use include at least some reference to the rejection of the values of the dominant society as a casual factor. Some authorities treat this rejection of conventional values in a positive fashion, emphasizing the need to create a better way of life, while others view the phenomenon negatively, indicating that this rejection reflects problems of alienation and social adjustment. It should be noted, however, that both of these perspectives are somewhat dated and may have only marginal relevance to the present situation as the contemporary meaning of hallucinogen use is, for many, very different from that of just a few years ago.

A number of authors, of whom Timothy Leary is perhaps the most prominent, have urged the use of hallucinogens as a means of altering the values of individuals and societies.^{215, 216} Leary, in fact, treated the hallucinogens as the sacrament of a new religion. This new religion was seen as the religion of a distinctive new community of users, and while not constituting a society in the sense of having a geographical location, its members were regarded as a new people with distinctive values, norms, beliefs and knowledge, ultimately to become a new and improved species of the human race.

The espousal and wide publicization of this philosophy should not be underestimated in terms of its influence in affecting the decision to try hallucinogens by hundreds of thousands of persons. Hoffer has suggested that a social movement requires both a ripeness of time and a leader who is able to propound a philosophy that commands the attention of thousands of followers.¹⁶⁵ The mid-'60s, in many ways, represented the "right time" for the

widespread acceptance of hallucinogens and a psychedelic philosophy which rationalized their use. The social conditions of the previous few decades did not permit the life style experimentation and alternatives that developed during the 1960s. As McGlothlin has noted:

When an adolescent grows up in a structured society which demands he assume adult responsibilities at a relatively early age, the alternative of turning on and dropping out is not available. An affluent society which allows prolonged periods of economic dependence and leisure greatly increases the possible choices as to life styles. Anything which leaves the individual without an established place in the social structure increases the likelihood for radical departures from the existing norms. Weakening of family and community groups, chronic social and technological change, and the lack of historical relatedness have been cited as [contributing factors]. . . Whatever the explanation, it seems likely that if Leary's psychedelic philosophy had been propounded in the depression years of the 1930's, or the war years of the 1940's, it would have gone unnoticed.²⁵⁴

In a sense, then, it was a lack of demand rather than a lack of supply that delayed the widespread use of hallucinogens until the 1960s. Leary and other LSD proponents used the media and their own charismatic qualities to publicize and advocate the use of these drugs and, concurrently, espoused a radical social philosophy that justified their use. The 'Turn-On, Tune-In, Drop-Out' philosophy was readily adopted by many persons, not only because of the social conditions mentioned above, but also because the increasing demand for hallucinogens coincided with the extension of higher education, especially in the social and behavioural sciences, and with a corresponding decline of conventional religious authority in intellectual spheres. The post-sputnik science boom subsided in the middle 1960s, and the social sciences became the fastest growing area of interest of higher education, and even began to be introduced into high school curricula. More people were seeking knowledge about human existence, and conventional sources of wisdom in this sphere became increasingly discredited. Interest in religion did not decline during this period, but the nature of this interest changed radically. The coincidence of a greater search for self-understanding with fewer sources of answers perceived to be reliable prompted the search for alternative means of attaining wisdom. For many, drug use, especially use of the hallucinogens, served these metaphysical interests.

The alienation-counter culture theories are particularly important as an explanation of the use of hallucinogens. These theories are described elsewhere in this appendix, but it should be noted that, in certain respects, they seem particularly applicable to the hallucinogens, or effectively to people who use cannabis heavily as well as take hallucinogens. Thus, a particular complex of social conditions, a decline in the credibility of traditional social institutions, and the publicity accorded to a "new religion" combined to pave the way for a kind of drug consumption that promised, through increased

awareness, to create an improved society, ameliorate social conditions, and put meaning into lives which were increasingly perceived to be meaningless.

A number of studies have revealed that hallucinogen use is, indeed, associated with the life styles and values of the 'counter culture'. Although these studies do not reveal whether these values existed prior to hallucinogen use or developed thereafter, it is evident that these two phenomena tend to occur together. For example, data collected by the Narcotics Addiction Foundation of British Columbia during a survey of Vancouver high school students showed that hallucinogen users disproportionately had unconventional career plans or plans to travel after high school, were more interested in music and art at school, had intentions of pursuing work in the arts afterwards, were not interested in sports or academic subjects at school, preferred 'acid rock' to other types of music, and claimed not to refer to parents or friends in making decisions about drugs, careers, dating or styles of dress. The users differed strongly from their parents in their views of the world, did not get along well with them, and were more likely to live on their own.³²⁸ A more recent American study has found similar relationships between counter cultural attitudes and activities and hallucinogen use among college students.¹⁴⁸

On the other hand, some authors do not think that counter cultural affiliation indicates a high degree of alienation or a radical departure from the conventional normative system. Rather, this style of life and the drug use that is concomitant with it is viewed as an extension of, but consistent with, such middle-class values as self-exploration and self-improvement.¹⁰¹ Similarly, Janowitz has treated the use of hallucinogens as an exercise in consciousness expansion, without necessarily involving a departure from most of the other values and practices of the dominant society.¹⁸⁰ Esthetic enrichment, with simple curiosity about experimentation, has, in this case, been suggested as the cause. Indeed, it has been proposed that the hallucinogenic experience may prove useful for a person in enabling him to find a more meaningful place for himself within the existing order—by allowing him to see beyond it for a short time.³²⁵ If there is any element of rejection here, it is perhaps more a rearrangement of priorities than a rejection of all dominant values—the promoting of sensation, emotion and immediacy with a down-grading of ordinary cognitive processes and instrumental styles of functioning.

While all of these theories may have been useful explanations of why some people used hallucinogens a few years ago, the recent attenuation of the psychedelic ethos has severely limited their applicability to contemporary use of these drugs. Some people, no doubt, continue to use the hallucinogens to promote or enhance self-knowledge, self-improvement, religious experiences and artistic creativity. And, for some, their use may well represent a search for real meaning in an alienating world. However, for most users today—particularly the new users who, in many cases, have not even heard of Leary—the use of hallucinogens is very similar in meaning to the use of cannabis,

devoid of spiritual significance or ritualized consumption patterns. As long ago as 1969, Fort suggested that hallucinogens, like most other drugs, were primarily used as a means for the promotion of immediate pleasure, not involving the enrichment of insight into self or others, the establishment of creative alternatives to conventional society or the edification of a new moral community.¹²⁷ While there are exceptions, Fort's hypothesis appears to have direct applicability to much of the contemporary Canadian situation in which hallucinogens are primarily used as a leisure or recreational activity, hedonism or simple pleasure having replaced the search for the transcendent experience.

References and Selected Bibliography

1. Abraham, K. The psychological relations between sexuality and alcoholism. In his *Selected papers on psycho-analysis*. London: Hogarth, 1964. Pp. 80-89.
2. Abrams, A., Gagnon, J. H., & Levin, J. J. Psychosocial aspects of addiction. *American Journal of Public Health*, 1968, 58: 2142-2155.
3. Abu-Laban, B., & Larsen, D. E. The qualities and sources of norms and definitions of alcohol. *Sociology and Social Research*, 1958, 53: 34-43.
4. Adams, E. W. What is addiction? *British Journal of Inebriety*, 1934, 33:1.
5. Ahmed, S. N. *Patterns of juvenile drug use*. (Doctoral dissertation, University of California, Berkeley) Ann Arbor, Mich.: University Microfilms, 1967. No. 68-5672.
6. Akers, R. L., Burgess, R. L., & Johnson, W. T. Opiate use, addiction, and relapse. *Social Problems*, 1968, 15: 459-469.
7. Aldrich, M. R. Availability as a factor in psychotropic drug use. Unpublished manuscript, Amorphia, Inc., San Francisco, California, 1973.
8. Alksne, H., Lieberman, H., & Brill, L. A. A conceptual model of the life cycle of addiction. *International Journal of the Addictions*, 1967, 2: 221-240.
9. Allen, J. R., & West, L. J. Flight from violence: Hippies and the green rebellion. *American Journal of Psychiatry*, 1968, 125: 364-370.
10. Allison, G. E. Bizarre addictions in children. *Manitoba Medical Review*, 1967, 47: 288-290.
11. Amit, Z., & Corcoran, M. E. Theories of drug dependence: A critical review. Unpublished Commission research paper, 1971.
12. Anderson, J. E. (Chedoke Hospital, Hamilton.) Letter to the Commission, 1971.
13. Anker, J. L., Milman, D. H., Kahan, S. A., & Valenti, C. Drug usage and related patterns of behavior in university students: I. General survey and marihuana use. *Journal of the American College Health Association*, 1971, 19:178-186.
14. Anumonye, A., & McClure, J. L. Adolescent drug abuse in a north London suburb. *British Journal of Addiction*, 1970, 65:25-33.
15. Armstrong, J. D. The search for the alcoholic personality. *Annals of the American Academy of Political and Social Sciences*, 1958, 315: 40-47.
16. Askevold, F. The occurrence of paranoid incidents and abstinence delirium in abuses of amphetamine. *Acta Psychiatrica et Neurologica Scandinavica*, 1959, 34: 145-164.
17. Atkinson, J. W. *An introduction to motivation*. Princeton, N.J.: Van Nostrand, 1964.
18. Atkinson, J. W. (Ed.) *Motives in fantasy, action and society: A method of assessment and study*. Princeton, N.J.: Van Nostrand, 1958.
19. Ausubel, D. P. *Drug addiction: Physiological, psychological and sociological aspects*. New York: Random House, 1958.
20. Ausubel, D. P. An evaluation of recent adolescent drug addiction. *Mental Hygiene*, 1952, 36: 373-382.

D Motivation and Other Factors Related to Non-Medical Drug Use

21. Bacon, S. D. Alcohol and complex society. In *Alcohol, science and society: Twenty-nine lectures with discussions as given at the Yale Summer School of Alcohol Studies*. New Haven, Conn.: Quarterly Journal of Studies on Alcohol, 1945. Pp. 179-200.
22. Bacon, S. D. Social settings conducive to alcoholism: A sociological approach to a medical problem. *Journal of the American Medical Association*, 1957, 164: 177-181.
23. Bacon, S. D. Sociology and the problems of alcohol: Foundations for a sociological study of drinking behavior. *Memoirs of the section of studies on alcohol*. No. 1 (2nd ed.) New Haven, Conn.: Yale University Press, 1946.
24. Bailey, M. B., Haberman, P. W., & Alksne, H. The epidemiology of alcoholism in an urban residential area. *Quarterly Journal of Studies on Alcohol*, 1965, 26: 19-40.
25. Bailly-Salin, P. Clinical forms of alcoholism prevalent among wine drinkers. In R. E. Popham (Ed.), *Alcohol and alcoholism*. Toronto: University of Toronto Press, 1970. Pp. 117-120.
26. Bales, R. F. Cultural differences in rates of alcoholism. *Quarterly Journal of Studies on Alcohol*, 1946, 6: 480-499.
27. Ball, J. C. Marijuana smoking and the onset of heroin use. In J. O. Cole & J. R. Wittenborn. *Drug abuse: Social and psychopharmacological aspects*. Springfield, Ill.: C. C. Thomas, 1967. Pp. 117-128.
28. Ball, J. C. Two patterns of narcotic drug addiction in the United States. *Criminal Police Science*, 1965, 56: 203-211.
29. Ball, J. C., & Bates, W. M. Migration and residential mobility of narcotic drug addicts. *Social Problems*, 1966, 14: 56-69.
30. Ball, J. C., & Chambers, C. D. (Eds.) *The epidemiology of opiate addiction in the United States*. Springfield, Ill.: C. C. Thomas, 1970.
31. Ball, J. C., Chambers, C. D., & Ball, M. J. The association of marihuana smoking with opiate addiction in the United States. *Journal of Criminal Law, Criminology and Police Science*, 1968, 59: 171-182.
32. Ball, J. C., & Snarr, R. W. A test of the maturation hypothesis with respect to opiate addiction. *Bulletin on Narcotics*, 1969, 21(4): 9-13.
33. Ballante, A. Marijuana: The symbol and the ritual. *Journal of Secondary Education*, 1968, 43: 218-222.
34. Bandura, A., & Walters, R. N. *Social learning and personality development*. New York: Holt, Rinehart & Winston, 1963.
35. Barber, B. A socio-cultural interpretation of the peyote cult. *American Anthropologist*, 1941, 43: 673-675.
36. Barnes, H. E. *Society in transition*. (2nd ed.) New York: Prentice-Hall, 1952.
37. Barron, F. Motivational patterns in LSD usage. In R. C. DeBold & R. C. Leaf (Eds.), *LSD, man and society*. Middletown, Conn.: Wesleyan University Press, 1967. Pp. 1-19.
38. Barron, S. P., Lowinger, P., & Ebner, E. A clinical examination of chronic LSD use in the community. *Comprehensive Psychiatry*, 1970, 11: 69-79.
39. Bartlett, S., & Tapia, F. Glue and gasoline "sniffing", the addiction of youth. *Missouri Medicine*, 1966, 63: 270-272.
40. Beach, H. D. Morphine addiction in rats. *Canadian Journal of Psychology*, 1957, 11: 104-112.

41. Beamish, P., & Kiloh, L. G. Psychoses due to amphetamine consumption. *Journal of Mental Science*, 1960, 106: 337-343.
42. Becker, H. S. *Outsiders: Studies in the sociology of deviance*. Glencoe, N.Y.: Free Press, 1963.
43. Bell, D. S., & Trethowan, W. H. Amphetamine addiction. *Journal of Nervous and Mental Diseases*, 1961, 133: 489-496.
44. Bell, D. S., & Trethowan, W. H. Amphetamine addiction and disturbed sexuality. *Archives of General Psychiatry*, 1961, 4: 74-78.
45. Bewley, T. H., & Ben-Arie, O. Study of 100 consecutive inpatients. *British Medical Journal*, 1968, 1: 727-730.
46. Blackwell, J. C. Opiate narcotics: Patterns of use. Unpublished Commission research paper, 1972.
47. Blum, R. H. Mind-altering drugs and dangerous behavior. 1. Dangerous drugs. In United States, President's Commission on Law Enforcement and Administration of Justice, *Task Force Report: Narcotics and Drug Abuse*. Washington, D.C.: U.S. Govt. Printing Office, 1967. Pp. 21-39.
48. Blum, R. H., & Associates. *Horatio Alger's children*. San Francisco: Jossey-Bass, 1972.
49. Blum, R. H., & Associates. *Society and drugs*. San Francisco: Jossey-Bass, 1969.
50. Blum, R. H., & Associates. *Students and drugs*. San Francisco: Jossey-Bass, 1969.
51. Blum, R. H., & Associates. *Utopiates: Use and users of LSD-25*. New York: Atherton Press, 1964.
52. Blumer, H. ADD Center project: Final report—The world of youthful drug use. Unpublished manuscript, School of Criminology, University of California, Berkeley, California, 1967.
53. Bowers, M., Chipman, A., Schwartz, A., & Dann, O. T. Dynamics of psychedelic drug abuse: A clinical study. *Archives of General Psychiatry*, 1967, 16: 560-566.
54. Brecher, E. M., and the Editors of Consumer Reports. *Licit and illicit drugs: The Consumers Union report on narcotics, stimulants, depressants, inhalants, hallucinogens and marijuana—including caffeine, nicotine, and alcohol*. Boston: Little, Brown, 1972.
55. Brill, H., & Hirose, T. The rise and fall of a methamphetamine epidemic: Japan 1945-55. *Seminars in Psychiatry*, 1969, 1: 179-194.
56. Brill, N. Q., Crumpton, E., & Grayson, H. M. Personality factors in marihuana use. *Archives of General Psychiatry*, 1971, 24: 163-165.
57. Brotman, R., Silverman, I., & Suffet, F. Drug use among affluent high school youth. In E. Goode (Ed.), *Marijuana*. New York: Atherton, 1970. Pp. 128-135.
58. Brown, B. S., Guavey, S. K., Neyers, M. B., & Stark, S. D. In their own words: Addicts' reasons for initiating and withdrawing from heroin. *International Journal of the Addictions*, 1971, 6: 635-645.
59. Brown, J. S. *The motivation of behavior*. New York: McGraw-Hill, 1961.
60. Brozovsky, M., & Winkler, E. G. Glue sniffing in children and adolescents. *New York State Journal of Medicine*, 1965, 65: 1984-1989.
61. Bugental, J. F. T. *The search for authenticity: An existential-analytic approach to psychotherapy*. New York: Holt, 1965.
62. Burroughs, W. *Junkie*. New York: Ace Books, 1953.

D Motivation and Other Factors Related to Non-Medical Drug Use

63. Burroughs, W., Jr. *Speed*. New York: Olympia Press, 1970.
64. Cahalan, D. *Problem drinkers*. San Francisco: Jossey-Bass, 1970.
65. Cahalan, D., Cisin, I. H., & Crossly, H. M. *American drinking practices: A national survey of drinking behavior and attitudes*. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1969.
66. Canada, Commission of Inquiry into the Non-Medical Use of Drugs. *Cannabis*. Ottawa: Information Canada, 1972.
67. Canada, Commission of Inquiry into the Non-Medical Use of Drugs. Causes and social context of the drug phenomenon. Unpublished transcript of Commission symposium, Montreal, 1970.
68. Canada, Commission of Inquiry into the Non-Medical Use of Drugs. *Interim report of the Commission of Inquiry into the Non-Medical Use of Drugs*. Ottawa: Queen's Printer, 1970.
69. Carey, J. T. *The college drug scene*. Englewood Cliffs, N.J.: Prentice-Hall, 1968.
70. Carey, J. T., & Mandel, J. A. San Francisco Bay area "speed" scene. *Journal of Health and Social Behavior*, 1968, 9: 164-174.
71. Carstairs, G. M. Daru and bhang: Cultural factors in the choice of intoxicant. *Quarterly Journal of Studies on Alcohol*, 1954, 15: 220-237.
72. Cavan, R. S. (Ed.) *Readings in juvenile delinquency*. New York: Lippincott, 1964.
73. Chambers, C. D., & Moffett, A. D. Negro opiate addiction. In J. C. Ball & C. D. Chambers (Eds.), *The epidemiology of opiate addiction in the United States*. Springfield, Ill.: C. C. Thomas, 1970. Pp. 178-201.
74. Cheek, F. E., Newell, S., & Sarett, M. The down-head behind an up-head—The heroin addict takes LSD. *International Journal of the Addictions*, 1969, 4: 101-119.
75. Cheek, F. E., Newell, S., & Sarett, M. Harbingers: Social relationships in groups of LSD users. Paper presented at the Conference on Drug Usage and Drug Subcultures, Asilomar, California, 1970.
76. Cheek, F. E., Sarett, M., & Newell, S. The illicit LSD group and life changes. *International Journal of the Addictions*, 1969, 4: 407-426.
77. Chein, I. The use of narcotics as a personal and social problem. In D. M. Wilner & G. G. Kassebaum (Eds.), *Narcotics*. New York: McGraw-Hill, 1965.
78. Chein, I., Gerard, D. L., Lee, R., & Rosenfeld, E. *The road to H*. New York: Basic, 1964.
79. Chein, I., & Rosenfeld, R. Juvenile narcotic use. *Law and Contemporary Problems*, 1957, 22: 52-68.
80. Cheinisse, L. La race juive jouit-elle d'une immunité à l'égard de l'alcoolisme? *La Semaine Médicale*, 1908, 27: 612-615.
81. Child, I. L., Barry, H., III, & Bacon, M. K. A cross-cultural study of drinking: Sex differences. In M. K. Bacon, H. Barry III, I. Child, C. Buckwald, & C. R. Snyder, *A cross-cultural study of drinking*. New Brunswick, N.J.: Journal of Studies on Alcohol, 1965. (*Quarterly Journal of Studies on Alcohol*, Supplement no. 3.)
82. Claghorn, J. L., Ordry, J. M., & Nagy, A. Spontaneous opiate addiction in rhesus monkeys. *Science*, 1965, 149: 440.
83. Clark, L. P. A psychological study of some alcoholics. *Psychoanalytic Review*, 1919, 6: 268-295.

84. Clinard, M. B. *Sociology of deviant behavior*. (3rd ed.) New York: Holt, Rinehart & Winston, 1968.
85. Cloward, R. A. Illegitimate means, anomie, and deviant behavior. *American Sociological Review*, 1959, 24: 164-176.
86. Cloward, R. A., & Ohlin, L. E. *Delinquency and opportunity*. Glencoe, Ill.: Free Press, 1960.
87. Cockett, R., & Marks, V. Amphetamine taking among young offenders. *British Journal of Psychiatry*, 1969, 115: 1203-1204.
88. Cofer, C. N., & Appley, M. H. *Motivation: Theory and research*. New York: Wiley, 1964.
89. Connell, P. H. Addiction to amphetamines. *St. Bartholomew's Hospital Journal*, 1967, 71.
90. Connell, P. H. *Amphetamine psychosis*. London: Chapman & Hall, 1958.
91. Connell, P. H. The assessment and treatment of adolescent drug-takers with special reference to the amphetamines. *Proceedings of the Leeds Symposium on Behavioral Disorders*. Dagenham: May & Becker, 1965.
92. Corliss, L. M. A review of the evidence on glue-sniffing—A persistent problem. *Journal of School Health*, 1965, 35: 442-449.
93. Cox, C., & Smart, R. G. Personality and psychopathological traits of speed users: A study of MMPI results. Unpublished manuscript, Project J-183, Addiction Research Foundation, Toronto, 1970.
94. Cox, C., & Smart, R. G. Social and psychological aspects of speed use: A study of types of speed users in Toronto. *International Journal of the Addictions*, 1972, 7: 201-217.
95. Critchley, M. Some forms of drug addiction: Mescalism. *British Journal of Inebriety*, 1931, 28: 99-108.
96. Crook, R. K. N. Social change, alienation and youth: A sociological analysis. Unpublished Commission research project, 1970.
97. Crowley, R. M. Psychoanalytic literature on drug addiction and alcoholism. *Psychoanalytic Review*, 1939, 26: 39-54.
98. Cruz-Coke, R., & Varela, A. Genetic factors in alcoholism. In R. E. Popham (Ed.), *Alcohol and alcoholism*. Toronto: University of Toronto Press, 1970. Pp. 284-289.
99. Dai, B. *Opiate addiction in Chicago*. Shanghai: Commercial Press, 1937.
100. Daly, C. U. (Ed.) *Urban violence*. Chicago (University of Chicago, Centre for Policy Study): University of Chicago Press, 1969.
101. Davis, F., & Munoz, L. Heads and freaks: Patterns and meanings of drug use among hippies. *Journal of Health and Social Behavior*, 1968, 9: 156-164.
102. Davis, J. D., Lulenski, G. C., & Miller, N. E. Comparative studies of barbiturate self-administration. *International Journal of the Addictions*, 1968, 3: 207-214.
103. de Alarcon, R. The communicability of drug abuse in adolescence. Unpublished manuscript, Clinical Psychiatry Unit, Graylingwell Hospital, Chichester, Sussex, England, 1971.
104. de Alarcon, R. The spread of heroin abuse in a community. *Bulletin on Narcotics*, 1969, 21(3): 17-22.
105. DeFleur, L. B., Ball, J. C., & Snarr, R. W. The long-term social correlates of opiate addiction. *Social Problems*, 1969, 17: 225-234.

106. de Lint, J., & Schmidt, W. The epidemiology of alcoholism. In Y. Israel & J. Mardones (Eds.), *Biological basis of alcoholism*. New York: Wiley, 1971. Pp. 423-442.
107. Deneau, G. A., Yanagita, T. & Seevers, M. H. *Psychic dependence studies of self-administration techniques in the rhesus monkey*. Houston, Texas: Committee on Drug Addiction and Narcotics, NRC-NAS, 1965.
108. De Quincy, T. *Confessions of an English opium eater, and other writings*. Toronto: New American Library of Canada, 1966.
109. De Ropp, R. S. *The master game: Beyond the drug experience*. New York: Dell 1968.
110. Dole, V. P. Research on methadone maintenance treatment. *International Journal of the Addictions*, 1970, 5: 359-373.
111. Dole, V. P., & Nyswander, M. E. Heroin addiction—A metabolic disease. *Archives of Internal Medicine*, 1967, 120: 19-24.
112. Doyon, P. L'actualisation de soi chez les adeptes de la drogue. *Toxicomanies*, 1971, 4: 257-306.
113. Duster, T. *The legislation of morality: Law, drugs and moral judgement*. New York: Free Press, 1970.
114. Eddy, N. B., Halbach, H., Isbell, H., & Seevers, M. H. Drug dependence: Its significance and characteristics. *Bulletin of the World Health Organization*, 1965, 32: 721-733.
115. Efron, V. Review of B. M. Segal, *Alcoholism: Clinical, sociopsychological and biological problems*. *Quarterly Journal of Studies on Alcohol*, 1969, 30: 831-833.
116. Efron, V. Sociological and cultural factors in alcohol abuse. In R. E. Popham (Ed.), *Alcohol and alcoholism*. Toronto: University of Toronto Press, 1970. Pp. 290-293.
117. Erikson, E. H. *Childhood and society*. (2nd ed.) New York: Norton, 1964.
118. Essig, C. F. Addiction to barbiturate and nonbarbiturate sedative drugs. In A. Wikler (Ed.), *The addictive states*. Baltimore: Williams & Wilkins, 1968. Pp. 188-198.
119. Fallding, H. The source and burden of civilization illustrated in the use of alcohol. *Quarterly Journal of Studies on Alcohol*, 1964, 25: 714-724.
120. Fejer, D., & Smart, R. G. Drug use, anxiety and psychological problems among adolescents. *Ontario Psychologist*, 1972, 4: 10-21.
121. Feldman, H. W. Ideological supports to becoming and remaining a heroin addict. *Journal of Health and Social Behavior*, 1968, 9: 131-139.
122. Felix, R. H. An appraisal of the personality types of the addict. *American Journal of Psychiatry*, 1944, 100: 462-467.
123. Felix, R. H. Some comments on the psychopathology of drug addiction. *Mental Hygiene*, 1939, 23: 567-582.
124. Fenichel, O. *The psychoanalytic theory of neurosis*. New York: Norton, 1945.
125. Finestone, H. Cats, kicks, and color. *Social Problems*, 1957, 5(1): 3-13.
126. Fischmann, V. S. Stimulant users in the California Rehabilitation Center. *International Journal of the Addictions*, 1968, 3: 113-130.
127. Fort, J. *The pleasure seekers: The drug crisis, youth and society*. New York: Bobbs-Merrill, 1969.

128. Freedman, D. X. On the use and abuse of LSD. *Archives of General Psychiatry*, 1968, 18: 330-347.
129. Freud, S. *The standard edition of the complete psychological works of Sigmund Freud*. London: Hogarth, 1955.
130. Freud, S. *Three essays on the theory of sexuality*. (Trans. & ed. by J. Strachey.) London: Hogarth Press, 1962.
131. Gellman, V. Glue-sniffing among Winnipeg school children. *Canadian Medical Association Journal*, 1968, 98: 411-413.
132. Gendreau, P., & Gendreau, L. P. The "addiction-prone" personality: A study of Canadian heroin addicts. *Canadian Journal of Behavioural Science*, 1970, 2: 18-25.
133. Gerard, D. L., & Kornetsky, C. Adolescent opiate addiction: A study of control and addict subjects. *Psychiatric Quarterly*, 1955, 29: 457-486.
134. Gibbins, R. J. *Chronic alcoholism and alcohol addiction*. Toronto: University of Toronto Press, 1953.
135. Giffen, P. J., Lambert, S., Morton, M., & Oki, G. The chronic drunkenness offender. IX. Education and work. Unpublished manuscript, Project 52, Sub-study 1-11 & 24 & Mo & 16-69. Addiction Research Foundation, Toronto, 1969.
136. Giffen, P. J., Lambert, S., & Williams, D. The chronic drunkenness offender. X. Criminal career. Unpublished manuscript, Project 52, Sub-study 1-11 & 24 & W-69. Addiction Research Foundation, Toronto, 1969.
137. Gilbert, J. G., & Lombardi, D. N. Personality characteristics of young male narcotic addicts. *Journal of Consulting Psychology*, 1967, 31, 536-538.
138. Globetti, G., & Windham, G. O. The social adjustment of high school students and the use of beverage alcohol. *Sociology and Social Research*, 1967, 51: 148-157.
139. Glover, E. The aetiology of alcoholism. *Proceedings of the Royal Society of Medicine*, 1928, 21: 45.
140. Glover, E. On the aetiology of drug addiction. *International Journal of Psycho-Analysis*, 1932, 13: 298-328.
141. Goode, E. *The marijuana smokers*. New York: Basic, 1970.
142. Great Britain, Ministry of Health, Department of Health for Scotland. *Drug Addiction. Report of the Interdepartmental Committee on Drug Addiction*. London: Her Majesty's Stationery Office, 1961.
143. Great Britain, Ministry of Health, Departmental Committee on Morphine and Heroin Addiction. *Report*. London, 1926. Cited by A. Lewis, Introduction: Definitions and perspectives. In H. Steinberg (Ed.), *Scientific basis of drug dependence*. London, Churchill, 1969.
144. Green, M. The amphetamines and amphetamine-like drugs: Patterns of use. Unpublished Commission research paper, 1971.
145. Green, M. Committed users study. Unpublished Commission research project, 1971.
146. Griffith, J. D. Psychiatric implication of amphetamine abuse. In J. R. Russo (Ed.), *Amphetamine abuse*. Springfield, Ill.: C. C. Thomas, 1968. Pp. 15-31.
147. Griffith, J. D. A study of illicit amphetamine drug traffic in Oklahoma City. *American Journal of Psychiatry*, 1966, 123: 560-569.
148. Groves, W. E. Patterns of college student drug use and lifestyles. Paper presented at the Epidemiology of Drug Use Conference, San Juan, Puerto Rico, February 12-14, 1973.

D Motivation and Other Factors Related to Non-Medical Drug Use

149. Haagen, C. H. *Social and psychological characteristics associated with the use of marijuana by college men*. Middletown, Conn.: Wesleyan University, 1970.
150. Haberman, P. W., & Sheinberg, J. Implicative drinking reported in a household survey: A corroborative note on subgroup differences. *Quarterly Journal of Studies on Alcohol*, 1967, 28: 538-543.
151. Hampton, W. H. Observed psychiatric reactions following use of amphetamine and amphetamine-like substances. *Bulletin of the New York Academy of Medicine*, 1961, 37: 167-175.
152. Hawks, D. The epidemiology of narcotic addiction in the United Kingdom. Paper presented at the Epidemiology of Drug Use Conference, San Juan, Puerto Rico, February 12-14, 1973.
153. Hawks, D., Mitcheson, M., Ogborne, A., & Edwards, G. Abuse of methylamphetamine. *British Medical Journal*, 1969, 2: 715-721.
154. Headlee, C. P., Coppock, H. W., & Nichols, J. R. Apparatus and techniques involved in a laboratory method of detecting the addictiveness of drugs *Journal of the American Pharmaceutical Association (Scientific Edition)*, 1955, 44: 229-231.
155. Hebb, D. O. *A textbook of psychology*. (2nd ed.) Philadelphia: W. B. Saunders, 1966.
156. Hekimian, L. J., & Gershon, S. Characteristics of drug abusers admitted to a psychiatric hospital. *Journal of the American Medical Association*, 1968, 205: 125-130.
157. Henderson, I. *An exploration of the natural history of heroin addiction*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
158. Herman, M., & Nagler, S. H. Psychoses due to amphetamine. *Journal of Nervous and Mental Diseases*, 1954, 120: 268-272.
159. Hess, A. G. Deviance theory and the history of opiates. *International Journal of the Addictions*, 1971, 6: 585-598.
160. Hesse, E. *Narcotics and drug addiction*. New York: Philosophical Library, 1946.
161. Hill, H. E., Haertzen, C. A., & Davis, H. An MMPI factor analytic study of alcoholics, narcotic addicts and criminals. *Quarterly Journal of Studies on Alcohol*, 1962, 23: 411-431.
162. Hill, H. E., Haertzen, C. A., & Yamahiro, R. S. The addict physician: A Minnesota multiphasic personality inventory study of the interaction of personality characteristics and availability of narcotics. In A. Wikler (Ed.) *The addictive states*. Baltimore: Williams & Wilkins, 1968. Pp. 321-332.
163. Himmelsbach, C. K. Can the euphoric, analgetic and physical dependence effects of drugs be separated? IV. With reference to physical dependence. *Federation Proceedings*, 1943, 2: 201-203.
164. Hochman, J. S., & Brill, N. O. Marijuana use and psycho-social adaptation. Unpublished manuscript, Center for the Health Sciences, University of California, Los Angeles, 1971.
165. Hoffer, E. *The true believer*. New York: Harper, 1951.
166. Hofmann, A. The discovery of LSD and subsequent investigations on naturally occurring hallucinogens. In F. J. Ayd, Jr., & B. Blackwell (Eds.), *Discoveries in biological psychiatry*. Philadelphia: Lippincott, 1970.
167. Hogan, R., Mankin, D., Conway, J., & Fox, S. Personality correlates of undergraduate marijuana use. *Journal of Consulting and Clinical Psychology*, 1970, 35: 58-63.

168. Hong Kong, Legislative Council. *The problem of narcotic drugs in Hong Kong*. Hong Kong: Government Press, 1959.
169. Horton, D. The functions of alcohol in primitive societies: A cross-cultural study. *Quarterly Journal of Studies on Alcohol*, 1943, 4: 199-320.
170. Howard, J., & Borges, P. Needle sharing in the Haight: Some social and psychological functions. *Journal of Health and Social Behavior*, 1970, 11: 220-230.
171. Hughes, P. H., & Crawford, G. A. A contagious disease model for researching and intervening in heroin epidemics. *Archives of General Psychiatry*, 1972, 27: 149-155.
172. Hull, C. L. *Principles of behavior: An introduction to behavior theory*. New York: Appleton-Century-Crofts, 1943.
173. Huxley, A. L. *The doors of perception and Heaven and hell*. Harmondsworth, England: Penguin, 1969.
174. Isbell, H. Meeting a growing menace: Drug addiction. *Merck Report*, 1951, 60(3): 4-9.
175. Isbell, H. Perspectives in research on opiate addiction. In D. M. Wilner & G. G. Kassebaum (Eds.), *Narcotics*. New York: McGraw Hill, 1965.
176. Jaffe, J. H. Drug addiction and drug abuse. In L. S. Goodman & A. Gilman (Eds.), *The pharmacological basis of therapeutics*. (4th ed.) Toronto: Macmillan, 1970. Pp. 276-313.
177. Jaffe, J. H., & Sharpless, S. K. Pharmacological denervation supersensitivity in the central nervous system: A theory of physical dependence. In A. Wikler (Ed.), *The addictive states*. Baltimore: Williams & Wilkins, 1968. Pp. 226-246.
178. James, I. P., & D'Orban, P. T. Patterns of delinquency among British heroin addicts. *Bulletin on Narcotics*, 1970, 22: 13-19.
179. Jamison, K. Psychological and sociological perspectives in narcotics addiction. "Appendix B" to W. H. McGlothlin, V. C. Tabbush, C. D. Chambers, & K. Jamison, *Alternative approaches to opiate addiction control: Costs, benefits and potential*. Unpublished manuscript, Department of Psychology, University of California, Los Angeles, 1972.
180. Janowitz, J. F. There's no hiding place down there. *American Journal of Orthopsychiatry*, 1967, 37: 296.
181. Jellinek, E. M. *The disease concept of alcoholism*. New Haven, Conn.: Hillhouse Press, 1960.
182. Jellinek, E. M. Recent trends in alcoholism and in alcohol consumption. *Quarterly Journal of Studies on Alcohol*, 1947, 8: 1-42.
183. Jessor, R., Carman, R. S., & Grossman, P. H. Expectations of need satisfaction and drinking patterns of college students. *Quarterly Journal of Studies on Alcohol*. 1968, 29: 101-116.
184. Jones, M. C. Personality correlates and antecedents of drinking patterns in adult males. *Journal of Consulting and Clinical Psychology*, 1968, 32: 2-12.
185. Kallant, O. J. *The amphetamines: Toxicity and addiction*. Toronto: University of Toronto Press, 1966.
186. Keller, M., & Efron, V. The prevalence of alcoholism. *Quarterly Journal of Studies on Alcohol*, 1955, 16: 619-644.
187. Keniston, K. Heads and seekers: Drugs on campus, counter-cultures and American society. *American Scholar*, 1968, 38: 97-112.

D Motivation and Other Factors Related to Non-Medical Drug Use

188. Keniston, K. *The uncommitted: Alienated youth in American society*. New York: Dell, 1965.
189. Kielholz, P. Present problems of drug dependence in Switzerland. *Bulletin on Narcotics*, 1970, 22: 1-6.
190. Kiloh, L. G., & Brandon, S. Habituation and addiction to amphetamines. *British Medical Journal*, 1962, 2: 40-43.
191. Kleber, H. D. Student use of hallucinogens. *College Health*, 1965, 14: 109-117.
192. Knupfer, G., & Room, R. Drinking patterns and attitudes of Irish, Jewish and white protestant American men. *Quarterly Journal of Studies on Alcohol*, 1967, 28: 676-699.
193. Kolb, L. *Drug addiction: A medical problem*. Springfield, Ill.: C. C. Thomas, 1962.
194. Kolb, L. Pleasure and deterioration from narcotic addiction. *Mental Hygiene*, 1925, 9: 699-724.
195. Kolb, L. Types and characteristics of drug addicts. *Mental Hygiene*, 1925, 9: 300.
196. Kolb, L., & Ossenfort, W. F. Treatment of drug addicts at the Lexington Hospital. *Southern Medical Journal*, 1938, 31: 914-922.
197. Kramer, J. C. Introduction to amphetamine abuse. *Journal of Psychedelic Drugs*, 1969, 2(2): 1-16.
198. Kramer, J. C., Fischmann, V. S., & Littlefield, D. C. Amphetamine abuse: Pattern and effects of high doses taken intravenously. *Journal of the American Medical Association*, 1967, 201: 305-309.
199. Krippner, S. Marijuana and Viet Nam: Twin dilemmas for American youth. Paper presented at the annual convention of the Brooklyn Psychological Association, New York, November 16, 1968.
200. Krug, D. C., Sokol, J., & Nylander, I. Inhalation of commercial solvents: A form of deviance among adolescents. In E. Harms (Ed.), *Drug addiction in youth*. London: Pergamon, 1965. Pp. 36-45.
201. Kumar, R., Steinberg, H., & Stolerman, I. P. Inducing a preference for morphine in rats without premedication. *Nature*, 1968, 218: 564-565.
202. LaBarre, W. Acute adverse reactions to LSD in clinical and experimental use in the United Kingdom. *British Journal of Psychiatry*, 1971, 118: 229-230.
203. LaBarre, W. Primitive psychotherapy in native American cultures: Peyotism and confession. *Journal of Abnormal and Social Psychology*, 1947, 24: 294-309.
204. Laforest, L. La consommation de drogues chez les étudiants du secondaire et du collégial de l'Île de Montréal. Unpublished manuscript, Office de la Prévention et du Traitement de l'Alcoolisme et des autres Toxicomanies, Québec, 1969.
205. Lancaster, B., & Rockley, G. J. Amphetamine taking among young offenders. *British Journal of Psychiatry*, 1970, 116: 349-350.
206. Langrod, J. Secondary drug use among heroin users. Unpublished manuscript, Columbia University, Bureau of Applied Social Research, New York, 1969.
207. Lanphier, C. M., & Phillips, S. B. The non-medical use of drugs and associated attitudes: A national household survey. Unpublished Commission research project, 1971.
208. Lanphier, C. M., & Phillips, S. B. Secondary school students and non-medical drug use: A study of students enrolled in grades seven through thirteen. Unpublished Commission research project, 1971.

209. Lanphier, C. M., & Phillips, S. B. University students and non-medical drug use: A national survey. Unpublished Commission research project, 1971.
210. Lerner, J. (Ed.), & Tefferteller, R. *The addict in the street*. New York: Grove, 1964.
211. Larsen, D. E., & Abu-Laban, B. Norm qualities and deviant drinking behavior. *Social Problems*, 1968, 15: 441-450.
212. Lasagna, L., von Felsinger, J. M., & Beecher, H. K. Drug-induced mood changes in man: 1. Observations on healthy subjects, chronically ill patients and "post-addicts". *Journal of the American Medical Association*, 1955, 157: 1006-1020.
213. Laskowitz, D. Psychological characteristics of the adolescent addict. In E. Harms (Ed.), *Drug addiction in youth*. London: Pergamon Press, 1965. Pp. 67-85.
214. Latchford, M., & McDonald, L. Comparative international study of alcoholism. Unpublished Commission research project, 1971.
215. Leary, T. *High priest*. Cleveland: World, 1968.
216. Leary, T. *The politics of ecstasy*. New York: Putnam's, 1968.
217. Leblanc, M. Drogue-Jeunesse: Montréal, été 1970. Unpublished Commission research paper, 1971.
218. Ledermann, S. *Alcool-Alcoolisme-Alcoolisation*. Paris: Presses universitaires de France, 1956.
219. Levensgood, R., Lowinger, P., & Schoof, K. Heroin addiction in the suburbs: An epidemiologic study. Unpublished manuscript, Lafayette Clinic, Detroit, Mich., 1971.
220. Levine, S. V., Lloyd, D. D., & Longdon, W. H. The speed user: Social and psychological factors in amphetamine abuse. *Canadian Psychiatric Association Journal*, 1972, 17: 229-241.
221. Lindesmith, A. R. *The addict and the law*. Bloomington, Ind.: Indiana University Press, 1965.
222. Lindesmith, A. R. *Addiction and opiates*. Chicago: Aldine, 1968.
223. Lindesmith, A. R. The drug addict as a psychopath. *American Sociological Review*, 1940, 5: 914-920.
224. Lindesmith, A. R. *Opiate addiction*. Bloomington, Ind.: Principia, 1947.
225. Lindesmith, A. R. Problems in the social psychology of addiction. In D. M. Wilner & G. G. Kassebaum, *Narcotics*. New York: McGraw-Hill, 1965. Pp. 118-139.
226. Lindesmith, A. R. Psychology of addiction. In W. G. Clark (Ed.), *Principles of psychopharmacology*. New York: Academic Press, 1970. Pp. 471-476.
227. Lindesmith, A. R., & Gagnon, J. H. Anomie and drug addiction. In M. B. Clinard (Ed.), *Anomie and deviant behavior*. Glencoe, Ill.: Free Press, 1965. Pp. 158-188.
228. Lisanky, E. S. The etiology of alcoholism: The role of psychological predisposition. *Quarterly Journal of Studies on Alcohol*, 1960, 21: 314-343.
229. Lolli, G. Alcoholism as a disorder of the love disposition. *Quarterly Journal of Studies on Alcohol*, 1956, 17: 96-107.
230. Lolli, G. The cocktail hour: Physiological, psychological and social aspects. In S. P. Lucia (Ed.), *Alcohol and civilization*. New York: McGraw-Hill, 1963. Pp. 183-199.
231. Longdon, W. H. A psychodynamic study of the young female "speed" user. Paper presented at the Ontario Psychiatric Association Annual Meeting, Toronto, 1971.

D Motivation and Other Factors Related to Non-Medical Drug Use

232. Louria, D. B. *The drug scene*. New York: McGraw-Hill, 1968.
233. Lubin, S., Blumberger, S., Diez d'Aux, R., Garfinkle, E., Goldhamer, P., Groulx, B., Kahn, R., & Weiner, H. Stress and drug use among medical students at McGill University. Unpublished manuscript, Montreal, 1971.
234. Lukoff, I. F., Quatrone, D. & Sardell, A. Some aspects of the epidemiology of heroin use in a ghetto community: A preliminary report. Unpublished manuscript, Columbia University School of Social Work, New York, 1972.
235. MacDonald, L. "Psychopathology" of "narcotic addiction": A new point of view. In E. Harms (Ed.), *Drug addiction in youth*. New York: Pergamon Press, 1965. Pp. 56-66.
236. MacKay, J. R., Phillips, D. L. & Bryce, F. O. Drinking behavior among teenagers: A comparison of institutionalized and non-institutionalized youth. *Journal of Health and Social Behavior*, 1967, 8: 46-54.
237. Maddux, J. F. Hospital management of the narcotic addict. In D. M. Wilner & G. G. Kassebaum (Eds.), *Narcotics*. New York: McGraw-Hill, 1965. Pp. 159-176.
238. Manheimer, D. I. Marijuana use among adults in two San Francisco Bay area locales. Paper presented at the Conference on Drug Usage and Drug Subcultures, Asilomar, Calif., February 12, 1970.
239. Mankin, D., Hogan, R., Conway, J., & Fox, S. Personality correlates of undergraduate marijuana use. Paper presented at the annual meeting of the Eastern Psychological Association, Philadelphia, April 10, 1969.
240. Mannheim, H., & Wilkins, L. T. *Prediction methods in relation to Borstal training*. London: Her Majesty's Stationery Office, 1955.
241. Marchuk, E. Montreal report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
242. Martin, J. E., & Inglis, J. Pain tolerance and narcotic addiction. *British Journal of Social and Clinical Psychology*, 1965, 4: 224-229.
243. Maslow, A. H. *Motivation and personality*. New York: Harper, 1954.
244. Maslow, A. H. *Toward a psychology of being*. Princeton, N.J.: Van Nostrand, 1962.
245. Masserman, J. H., & Yum, K. S. An analysis of the influence of alcohol on experimental neuroses in cats. *Psychosomatic Medicine*, 1946, 8: 36-52.
246. Maurer, D. W., & Vogel, V. H. *Narcotics and narcotic addiction*. (3rd ed.) Springfield, Ill.: C. C. Thomas, 1967.
247. Mauss, A. L. Anticipatory socialization toward college as a factor in adolescent marijuana use. *Social Problems*, 1969, 16: 357-364.
248. McAree, C. P., Steffenhagen, R. A., & Zheutlin, L. S. Personality factors in college drug users. *International Journal of Social Psychiatry*, 1969, 15: 102-106.
249. McClearn, G. E., & Rodgers, D. A. Differences in alcohol-preference among inbred strains of mice. *Quarterly Journal of Studies on Alcohol*, 1959, 20: 691-695.
250. McClelland, D. C. *The achieving society*. Princeton, N.J.: Van Nostrand, 1961.
251. McClelland, D. C. *Personality*. New York: Sloane, 1951.
252. McCord, W., & McCord, J. *Origins of alcoholism*. Stanford, Calif.: Stanford University Press, 1960.
253. McCord, W., McCord, J., & Gudeman, J. Some current theories of alcoholism: A longitudinal evaluation. *Quarterly Journal of Studies on Alcohol*, 1959, 20: 727-749.

254. McGlothlin, W. H. The epidemiology of hallucinogenic drug use. Paper presented at the Conference on the Epidemiology of Drug Use, San Juan, Puerto Rico, February 12-14, 1973.
255. McGlothlin, W. H. Policies concerning hallucinogenic drugs. In B. Bruce-Briggs, C. Nuthmann, W. H. McGlothlin, & E. B. Truitt, Jr. (Eds.), *Policy concerning drug abuse in New York State*. Vol. II. Croton-on-Hudson, N.Y.: Hudson Institute, 1970. Pp. 27-47.
256. McGlothlin, W. H., Arnold, D. O., & Rowan, P. K. Marijuana use among adults. *Psychiatry*, 1970, 33: 433-443.
257. McGlothlin, W. H., & Cohen, S. The use of hallucinogenic drugs among college students. *American Journal of Psychiatry*, 1965, 122: 572-574.
258. Mead, M. *The changing culture of an Indian tribe*. New York: Columbia University Press, 1932.
259. Merloo, J. A. M. Artificial ecstasy: A study of the psychosomatic aspects of drug addiction. *Journal of Nervous and Mental Diseases*, 1952, 115: 246-266.
260. Mendelson, J. H. Alcohol. In W. G. Clark & J. del Giudice (Eds.), *Principles of psychopharmacology*. New York: Academic. 1970. Pp. 505-516.
261. Menninger, K. A. *Man against himself*. New York: Harcourt Brace, 1938.
262. Merton, R. K. *Social theory and social structure*. (Enl. ed.) New York: Free Press, 1968.
263. Messinger, E., & Zitrin, A. A. A statistical study of criminal drug addicts: Psychosis, psychoneurosis, mental deficiency, and personality types. *Crime and Delinquency*, 1965, 11: 283-292.
264. Michigan, Special House Committee on Narcotics. Drug dependence in Michigan—A study of attitudes and actions of the young people of Michigan. A condensation of a 1969 Report by the Michigan Special House Committee on Narcotics, 1969. Pp. 257-267.
265. Mills, C. W. Situated actions and vocabularies of motive. *American Sociological Review*, 1940, 5: 904-913.
266. Mirin, S. M., Shapiro, L. M., Meyer, R. E., Pillard, R. C., & Fisher, S. Casual versus heavy use of marijuana: A redefinition of the marijuana problem. *American Journal of Psychiatry*, 1971, 127: 54-60.
267. Modlin, H. C., & Montes, A. Narcotics addiction in physicians. *American Journal of Psychiatry*, 1964, 121: 358-365.
268. Mogar, R. E. The psychedelic drugs and human potentialities. In H. A. Otto (Ed.), *Explorations in human potentialities*. Springfield, Ill.: C. C. Thomas, 1966. Pp. 442-453.
269. Monod, J. *Les barjots, essai d'ethnologie des bandes de jeunes*. Paris: Julliard, 1968.
270. Monsour, K. J. Management of chronic alcoholism in the army. *Bulletin of U.S. Army Medical Department*, 1948, 8: 882-887.
271. Moorehead, N. C. Amphetamine consumption in Northern Ireland. *Journal of the Irish Medical Association*, 1968, 61(369): 80-84.
272. Murphy, B. C. (Research Officer, Western Region, Canadian Penitentiary Service) Letter to the Commission, 1971.
273. Murphy, B. C. *A quantitative test of the effectiveness of an experimental treatment programme for delinquent opiate addicts*. Department of the Solicitor General of Canada, Research Centre Report 4. Ottawa: Information Canada, 1972.

D *Motivation and Other Factors Related to Non-Medical Drug Use*

274. Murphy, B. C. Response measures for assessing the effectiveness of training programs for delinquent addicts: A preliminary report on validation. Unpublished manuscript, Matsqui Institution, Abbotsford, B.C., n.d.
275. Murphy, B. C. Rounders and squares: Comparative attitudes of delinquent addicts and non-delinquent non-addicts in Vancouver, B.C. Unpublished manuscript, Matsqui Institution, Abbotsford, B.C., 1968.
276. Murphy, C. Halifax report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
277. Murray, H. A., et al. *Explorations in personality: A clinical and experimental study of fifty men of college age by the workers at the Harvard psychological clinic*. London: Oxford University Press, 1938.
278. Narcotic Addiction Foundation of British Columbia, Research Department. Drug use among Vancouver secondary students. Unpublished manuscript, Vancouver, 1971.
279. Nichols, J. R. How opiates change behavior. *Scientific American*, 1965, 212(2): 80-88.
280. Nichols, J. R. Opiates as reinforcing agents: Some variables which influence drug seeking in animals. Symposium presented at the meeting of the American Psychological Association, Washington, D.C., 1967.
281. Nichols, J. R., & Hsiao, S. Addiction liability of albino rats: Breeding for quantitative differences in morphine drinking. *Science*, 1967, 157: 561-563.
282. Norton, W. A. The marihuana habit: Some observations of a small group of users. *Canadian Psychiatric Association Journal*, 1968, 13: 163-173.
283. Nyswander, M. Drug addictions. In S. Arieti (Ed.), *American handbook of psychiatry*. Vol. I. New York: Basic, 1959. Pp. 614-622.
284. Nyswander, M. *The drug addict as patient*. New York: Grune & Stratton, 1956.
285. O'Donnell, J. A. Narcotic addiction and crime. *Social Problems*, 1965, 13: 374-385.
286. O'Donnell, J. A. *Narcotic addicts in Kentucky*. (Public Health Service Publication No. 1881) Washington, D.C.: U.S. Government Printing Office, 1969.
287. O'Neill, M. J. Monitoring study field reports: Montreal. Unpublished Commission research project, 1971.
288. O'Neill, M. J. Toronto report. Sub-study of M. Green, Committed users study. Unpublished Commission research project, 1971.
289. Payne, E. G. *The menace of narcotic drugs*. New York: Prentice-Hall, 1931.
290. Pearlman, S., Philip, A. F., Robbins, L., Robbins, E. S., Robinson, E., & Schmitter, B. The college drug scene: Adventures in epidemiological research. Paper presented at the Symposium on Students and Drugs, 55th Annual Convention of the American Educational Association, New York, February 1971.
291. Pearson, M. M., & Little, R. B. The addictive process in unusual addictions: A further elaboration of etiology. *American Journal of Psychiatry*, 1969, 125: 1166-1171.
292. Pescor, M. J. Physician drug addicts. *Diseases of the Nervous System*, 1942, 3: 173-174.
293. Pescor, M. J. *A statistical analysis of the clinical records of hospitalized drug addicts*. Public Health Reports, Supplement No. 143. Washington, D.C.: U.S. Government Printing Office, 1943.
294. Pfeffer, A. Z., & Ruble, D. C. Chronic psychoses and addiction to morphine. *Archives of Neurology and Psychiatry*, 1946, 56: 665-672.

295. Pittel S. M., & Hofer, R. The transition to amphetamine abuse. In *Proceedings of the Workshop on Current Concepts of Amphetamine Abuse*. Durham, N.C.: Duke University Medical Center, 1970.
296. Pittman, D. J. (Ed.) *Alcoholism*. New York: Harper & Row, 1967.
297. Pittman, D. J., & Gordon, C. W. *Revolving door: A study of the chronic police case inebriate*. Glencoe, Ill.: Free Press, 1958.
298. Popham, R. E. Some social and cultural aspects of alcoholism. *Canadian Psychiatric Association Journal*, 1959, 4: 222-229.
299. Popham, R. E. A statistical report relating to alcoholism and the use of alcoholic beverages in Canada. *International Journal on Alcohol and Alcoholism*, 1955, 1: 5-22.
300. Poplar, J. F. Characteristics of nurse addicts. *American Journal of Nursing*, 1969, 69: 117-119.
301. Postel, W. B. Marijuana use in Vietnam: A preliminary report. *United States Army Vietnam Medical Bulletin*, 1968, 40: 56-59.
302. Preble, E. Social and cultural factors related to narcotic use among Puerto Ricans in New York City. *International Journal of the Addictions*, 1966, 1: 30-41.
303. Preble, E., & Casey, J. J. Jr. Taking care of business: The heroin user's life on the street. *International Journal of the Addictions*, 1969, 4: 1-24.
304. Preston, J. D. Community norms and adolescent drinking behavior: A comparative study. *Social Science Quarterly*, 1968, 49: 350-359.
305. Radó, S. Narcotic bondage: A general theory of the dependence on narcotic drugs. In P. H. Hoch & J. Zubin (Eds.), *Problems of addiction and habituation*. New York: Grune & Stratton, 1958. Pp. 27-36.
306. Radó, S. The psychic effects of intoxicants: An attempt to evolve a psychoanalytical theory of morbid cravings. *International Journal of Psycho-Analysis*, 1926, 7: 396-413.
307. Radó, S. The psychoanalysis of pharmacothymia (drug addiction). *Psychoanalytic Quarterly*, 1933, 2: 1-23.
308. Rawlin, J. W. Street level abuse of amphetamines. In J. R. Russo (Ed.), *Amphetamine abuse*. Springfield, Ill.: C. C. Thomas, 1968. Pp. 51-65.
309. Ray, M. B. The cycle of abstinence and relapse among heroin addicts. In H. S. Becker (Ed.), *The other side: Perspectives on deviance*. New York: Free Press, 1964. Pp. 163-177.
310. Redlinger, L. J. *Dealing in dope: Market mechanisms and distribution patterns of illicit narcotics*. (Doctoral dissertation, Northwestern University, Evanston, Illinois) Ann Arbor, Mich.: University Microfilms, 1970, No. 70-6523.
311. Research Center for Human Relations. Family background as an etiologic factor in personality predisposition to heroin addiction. Unpublished manuscript, New York University, New York, 1956.
312. Research Center for Human Relations. Heroin use and street gangs. Unpublished manuscript, New York University, New York, 1956.
313. Richard, J. J. *Carré Saint-Louis*. Montréal: Actuelle, 1971.
314. Richman, A., Borschneck, A., & Rienzi, A. Natural history of narcotic addiction. *Canadian Psychiatric Association Journal*, 1964, 9: 431-438.
315. Richman, A., & Humphrey, B. Epidemiology of criminal narcotic addiction in Canada. *Bulletin on Narcotics*, 1969, 21: 31-40.

D Motivation and Other Factors Related to Non-Medical Drug Use

316. Robbins, T. Characteristics of amphetamine addicts. *International Journal of the Addictions*, 1970, 5: 183-193.
317. Robins, L. N., Bates, W. M., & O'Neal, P. Adult drinking patterns of former problem children. In D. J. Pittman & C. R. Snyder (Eds), *Society, culture and drinking patterns*. New York: John Wiley, 1962. Pp. 395-412.
318. Robins, L. N., & Murphy, G. E. Drug use in a normal population of young negro men. *American Journal of Public Health*, 1967, 57: 1580-1596.
319. Rogers, C. R. The actualization tendency in relation to "motives" and to consciousness. In *Nebraska symposium on motivation*. Lincoln, Nebraska: University of Nebraska Press, 1963. Pp. 1-24.
320. Rose, H. K., & Glatt, M. M. A study of alcoholism as an occupational hazard of merchant seamen. *Journal of Mental Science*, 1961, 107: 18-30.
321. Roszak, T. *The making of a counter culture*. Garden City, N.Y.: Doubleday, 1969.
322. Rubin, T., & Babbs, J. The glue sniffer. *Federal Probation*, 1970, 34: 23-28.
323. Rubington, E. Drug addiction as a deviant career. *International Journal of the Addictions*, 1967, 2: 3-20.
324. Rubington, E. Two types of drug use. *International Journal of the Addictions*, 1968, 3: 301-318.
325. Russell, J. *Survey of drug use in selected British Columbia schools*. Vancouver: Narcotic Addiction Foundation of British Columbia, 1970.
326. Russell, J. Unpublished computer printouts from the study Drug use among Vancouver secondary school students. Narcotic Addiction Foundation of British Columbia, Vancouver, 1971.
327. Sadava, S. W. The social psychology of non-medical drug use: A review and analysis. Unpublished manuscript, Institute of Behavioral Science, University of Colorado, Boulder, Colo., 1969.
328. Sadoun, R., Lolli, G., & Silverman, M. *Drinking in French culture*. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1965.
329. Sargent, M. J. Changes in Japanese drinking patterns. *Quarterly Journal of Studies on Alcohol*, 1967, 28: 709-722.
330. Sargent, M. J. The conception of alcoholism as a mental illness. *Quarterly Journal of Studies on Alcohol*, 1968, 29: 974-978.
331. Sargent, M. J. Heavy drinking and its relation to alcoholism—with special reference to Australia. *Australian and New Zealand Journal of Sociology*, 1968, 4: 146-157.
332. Schasre, R. Cessation patterns among neophyte heroin users. *International Journal of the Addictions*, 1966, 1: 23-32.
333. Scher, J. Patterns and profiles of addiction and drug abuse. *International Journal of the Addictions*, 1967, 2: 171-190.
334. Schonfield, J. Differences in smoking, drinking, and social behavior by race and delinquency status in adolescent males. *Adolescence*, 1966-1967, 1: 367-380.
335. Schuster, C. R., Jr. Psychological approaches to opiate dependence and self-administration by laboratory animals. *Federation Proceedings*, 1970, 29: 2-5.
336. Schuster, C. R., Jr., Dockens, W. S., & Woods, J. H. Behavioral variables affecting the development of amphetamine tolerance. *Psychopharmacologia*, 1966, 9: 170-182.
337. Schuster, C. R., Jr., & Thompson, T. Self administration of and behavioral dependence on drugs. *Annual Review of Pharmacology*, 1969, 9: 483-502.

338. Scott, P. D., & Willcox, D. R. C. Delinquency and the amphetamines. *British Journal of Psychiatry*, 1965, 111: 865-875.
339. Sears, R. R. Dependency motivation. In *Nebraska symposium on motivation*. Lincoln, Nebraska: University of Nebraska Press, 1963. Pp. 25-64.
340. Seevers, M. H. Medical perspectives on habituation and addiction. *Journal of the American Medical Association*, 1962, 181: 92-98.
341. Seevers, M. H., & Deneau, G. A. Physiological aspects of tolerance and physical dependence. In W. S. Root & F. G. Hofmann (Eds.), *Physiological pharmacology*. Vol. 1. New York: Academic Press, 1963. Pp. 565-640.
342. Selye, H. *The stress of life*. New York: McGraw-Hill, 1956.
343. Sheppard, C. W., Gay, G. R., & Smith, D. E. The changing face of heroin addiction in the Haight-Ashbury subculture. *Journal of Psychedelic Drugs*, 1971, 3(2): 22-30.
344. Sherfey, M. J. Psychopathology and character structure in chronic alcoholism. In O. Diethelm (Ed.), *Etiology of chronic alcoholism*. Springfield, Ill.: C. C. Thomas, 1955. Pp. 16-42.
345. Sherlock, B. J. Career problems and narcotics addiction in the health professions: An exploratory study. *International Journal of the Addictions*, 1967, 2: 191-206.
346. Shick, F. E., Smith, D. E., & Meyers, F. H. Use of amphetamine in the Haight-Ashbury subculture. *Journal of Psychedelic Drugs*, 1969, 2(2): 140-171.
347. Shulman, H. M. *Juvenile delinquency in American society*. New York: Harper, 1961.
348. Simmel, E. Alcoholism and addiction. *Psychoanalytic Quarterly*, 1948, 17: 6-31.
349. Simmel, E. Morbid habits and cravings. *Psychoanalytic Review*, 1930, 17: 481.
350. Simmons, J. L., & Winograd, B. *It's happening: A portrait of the youth scene today*. Santa Barbara, Calif.: Marc-Laird 1966.
351. Skinner, B. F. *The behavior of organisms: An experimental analysis*. New York: Appleton-Century, 1938.
352. Skolnick, J. H. Religious affiliation and drinking behavior. *Quarterly Journal of Studies on Alcohol*, 1958, 19: 452-470.
353. Slotkin, J. S. *The Peyote religion*. Glencoe, Ill: Free Press, 1956.
354. Smart, R. G., Fejer, D., & Alexander, E. Drug use among high school students and their parents in Lincoln and Welland counties. In P. H. Blachly (Ed.), *Progress in drug abuse*. Springfield, Ill.: C. C. Thomas, 1972. Pp. 62-103.
355. Smart, R. G., & Jackson, D. *A preliminary report on the attitudes and behaviour of Toronto students in relation to drugs*. Toronto: Addiction Research Foundation, 1969.
356. Smart, R. G., & Jones, D. Illicit LSD users: Their social background and drug use. Unpublished manuscript. Project J-183, Substudy 1-7 & Jo-69. Addiction Research Foundation, Toronto, 1969.
357. Smith, D. E. Speed freaks vs. acid heads: Conflict between drug subcultures. *Clinical Pediatrics*, 1969, 8(4): 185-188.
358. Smith, R. C. *The marketplace of speed: Compulsive methamphetamine abuse and violence*. (Doctoral dissertation, University of California, Berkeley) Ann Arbor, Mich.: University Microfilms, 1970. No. 70-12, 983.
359. Smith, R. C. The world of the Haight-Ashbury speed freak. *Journal of Psychedelic Drugs*, 1969, 2: 172-188.

360. Snyder, C. R. *Alcohol and the Jews: A cultural study of drinking and sobriety*. Glencoe, Ill.: Free Press, 1958.
361. Snyder, C. R. Inebriety, alcoholism, and anomie. In M. B. Clinard (Eds.), *Anomie and deviant behavior: A discussion and critique*. Glencoe, Ill.: Free Press, 1965. Pp. 189-211.
362. Solomon, D. (Ed.) *The marihuana papers*. New York: New American Library, 1966.
363. Steffenhagen, R. A., McAree, C. P., & Zheutlin, L. S. Social and academic factors associated with drug use of the University of Vermont campus. *International Journal of Social Psychiatry*, 1969, 15: 92-96.
364. Steinberg, H. (Ed.) *Scientific basis of drug dependence: A symposium*. London: Churchill, 1969.
365. Stevenson, G. H., Lingley, L. R. A., Trasov, G. E., & Stanfield, H. Drug addiction in British Columbia. Unpublished manuscript, University of British Columbia, Vancouver, 1956.
366. Stimson, G. V., & Ogborne, A. C. A survey of a representative sample of addicts prescribed heroin at London clinics. *Bulletin on Narcotics*, 1970, 22(4): 13-22.
367. Straus, R., & Bacon, S. D. *Drinking in college*. New Haven: Yale University Press, 1953.
368. Strecker, E. A. Chronic alcoholism: A psychological survey. *Quarterly Journal of Studies on Alcohol*, 1941, 2: 12-17.
369. Suchman, E. A. The "hang loose" ethic and the spirit of drug use. *Journal of Health and Social Behavior*, 1968, 9: 146-155.
370. Sutter, A. G. Worlds of drug use on the street scene. In D. R. Cressey & D. A. Ward (Eds.), *Delinquency, crime and social process*. New York: Harper & Row, 1969. Pp. 802-814, 826-829.
371. Sweden. Narkomanvardskommittee. [Committee on Drug Abuse.] Abuse of stimulants. [Missbruk av central-stimularande medel.] In the committee's Narkotika problemet. [The narcotics problem.] Vol. 3. Stockholm: Statens offentliga utredningar Socialdepartementet, 1969. Pp. 87-122.
372. Tatum, A. L., & Seevers, M. H. Theories of drug addiction. *Physiological Reviews*, 1931, 11: 107-121.
373. Thompson, T., & Ostlund, W., Jr., Susceptibility to readdiction as a function of the addiction and withdrawal environments. *Journal of Comparative and Physiological Psychology*, 1965, 60: 388-392.
374. Thompson, T., & Pickens, R. Stimulant self-administration by animals: Some comparisons with opiate self-administration. *Federation Proceedings*, 1970, 29: 6-12.
375. Thompson, T., & Schuster, C. R. *Behavioral pharmacology*. Englewood Cliffs, N.J.: Prentice-Hall, 1968.
376. Tookey, H. The increasing use of methamphetamine ("speed") among young people. Unpublished manuscript, Jewish Family and Child Service of Metropolitan Toronto, Toronto, 1969.
377. Ullman, A. D. Ethnic differences in the first drinking experience. *Social Problems*, 1960, 8: 45-56.
378. Ullman, A. D. Sociocultural backgrounds of alcoholism. *Annals of the American Academy of Political and Social Science*, 1958, 315: 48-54.
379. Ullman, L. P., & Krasner, L. A. *A psychological approach to abnormal behavior*. Englewood Cliffs, N.J.: Prentice Hall, 1969.

380. United States, Office of Economic Opportunity. Uniform evaluation of programs to combat narcotic addiction: Final report and Exhibit A—Data collection forms. Friends of Psychiatric Research Inc., Baltimore, Md., 1970.
381. Unwin, J. R. Non-medical use of drugs with particular reference to youth. *Canadian Medical Association Journal*, 1969, 101: 72-88. (Position paper included in Canadian Medical Association brief to the Commission, November 7, 1969)
382. Vaillant, G. E. Parent-child cultural disparity and drug addiction. *Journal of Nervous and Mental Diseases*, 1966, 142: 534-539.
383. Vaillant, G. E. The natural history of urban narcotic drug addiction—some determinants. In H. Steinberg (Ed.), *Scientific basis of drug dependence*. London: Churchill, 1969. Pp. 341-361.
384. Vaillant, G. E. A twelve-year follow-up of New York narcotic addicts. III. Some social and psychiatric characteristics. *Archives of General Psychiatry*, 1966, 15: 559-609.
385. Vaillant, G. E. A twelve-year follow-up of New York narcotic addicts: IV. Some characteristics and determinants of abstinence. *American Journal of Psychiatry*, 1966, 123: 573-584.
386. Vogel, S. An interpretation of medical and psychiatric approaches in the treatment of alcoholism. *Quarterly Journal of Studies on Alcohol*, 1953, 14: 620-631.
387. von Felsinger, J. M., Lasagna, L., & Beecher, H. K. Drug induced changes in man: 2. Personality and reactions to drugs. *Journal of the American Medical Association*, 1955, 157: 1113-1118.
388. Von Hoffman, N. *We are the people our parents warned us against*. Chicago: Quadrangle Books, 1968.
389. Wald, P. M., & Hutt, P. B. *Dealing with drug abuse: A report to the Ford Foundation*. New York: Praeger, 1972.
390. Waldorf, D. *Careers in dope*. Englewood Cliffs, N.J.: Prentice-Hall, 1973.
391. Waldorf, D. Life without heroin: Some social adjustments during long-term periods of voluntary abstinence. *Social Problems*, 1970, 18: 228-243.
392. Wallgren, H. Alcoholism and alcohol consumption. *Alkoholpolitik*, 1960, 4: 149 & 177-179.
393. Walsh, D. Amphetamine dependence in Dublin. *Journal of the Irish Medical Association*, 1966, 58: 161-163.
394. Watkins, C. Use of amphetamine by medical students. *Southern Medical Journal*, 1970, 63: 923-929.
395. Watts, A. W. *The joyous cosmology*. New York: Vintage, 1962.
396. Way, E. L. Control and treatment of drug addiction in Hong Kong. In D. M. Wilner & G. G. Kassebaum (Eds.), *Narcotics*. New York: McGraw-Hill, 1965.
397. Weeks, J. R., & Collins, R. J. Factors affecting voluntary morphine intake in self-maintained addicted rats. *Psychopharmacologia*, 1964, 6: 267-279.
398. Wellman, M. Towards an etiology of alcoholism: Why young men drink too much. *Canadian Medical Association Journal*, 1955, 73: 717-725.
399. Welpton, D. F. Psychodynamics of chronic lysergic acid diethylamide use: A clinical study of ten voluntary subjects. *Journal of Nervous and Mental Diseases*, 1968, 147: 377-385.
400. Whitehead, P. C. *Drug use among adolescent students in Halifax*. (Rev. & expanded) Halifax: Youth Agency, Province of Nova Scotia, 1970.

401. Whitehead, P. C. Head or brain? Drug use and academic performance. Unpublished manuscript, Department of Sociology, Dalhousie University, Halifax, 1969.
402. Wikler, A. (Ed.) *The addictive states*. Baltimore: Williams & Wilkins, 1968.
403. Wikler, A. Conditioning factors in opiate addiction and relapse. In D. M. Wilner & G. G. Kassebaum (Eds.), *Narcotics* New York: McGraw-Hill, 1965.
404. Wikler, A. On the nature of addiction and habituation. *British Journal of Addiction*, 1961, 57: 73-79.
405. Wikler, A. *Opiate addiction: Psychological and neuro-physiological aspects in relation to clinical problems*. Springfield, Ill.: C. C. Thomas, 1953.
406. Wikler, A. Rationale of the diagnosis and treatment of addictions. *Connecticut State Medical Journal*, 1955, 19: 560-569.
407. Wikler, A., Martin, W. R., Pescor, F. T., & Eades, C. G. Factors regulating oral consumption of an opioid (etonitazene) by morphine-addicted rats. *Psychopharmacologia*, 1963, 5: 55-76.
408. Wikler, A., & Pescor, F. T. Classical conditioning of a morphine abstinence phenomenon, reinforcement of opioid-drinking behavior and "relapse" in morphine-addicted rats. *Psychopharmacologia*, 1967, 10: 255-284.
409. Wikler, A., & Pescor, F. T. Persistence of "relapse-tendencies" of rats previously made physically dependent on morphine. *Psychopharmacologia*, 1970, 16: 375-384.
410. Wikler, A., & Rasor, R. W. Psychiatric aspects of drug addiction. *American Journal of Medicine*, 1953, 14: 566-570.
411. Wilkins, L. T. A behavioural theory of drug taking. *The Howard Journal*, 1962-1965, 11: 262-273.
412. Wilkins, L. T. *Social deviance: Social policy, action and research*. London: Tavistock, 1964.
413. Willis, J. H. The natural history of drug dependence: Some comparative observations on United Kingdom and United States subjects. In H. Steinberg (Ed.), *Scientific basis of drug dependence*. London: Churchill, 1969. Pp. 301-321.
414. Wilner, D. M., & Kassebaum, G. G. *Narcotics*. New York: McGraw-Hill, 1965.
415. Winick, C. The life cycle of the narcotic addict and of addiction. *Bulletin on Narcotics*, 1964, 16: 1-11.
416. Winick, C. Physician narcotic addicts. In H. S. Becker (Ed.), *The other side*. New York: Free Press, 1964. Pp. 261-279.
417. Winick, C. The use of drugs by jazz musicians. *Social Problems*, 1959-1960, 7: 240-253.
418. Winick, C., & Nyswander, M. Psychotherapy of successful musicians who are drug addicts. *American Journal of Orthopsychiatry*, 1961, 31: 622-636.
419. Winslow, R. W. *Society in transition: A social approach to deviancy*. New York: Free Press, 1970.
420. World Health Organization, Expert Committee on Addiction-Producing Drugs. *Thirteenth Report*. (WHO Technical Report Series No. 273), 1964.
421. Yablonsky, L. *The hippie trip*. New York: Pegasus, 1968.
422. Yorke, C. A critical review of some psychoanalytic literature on drug addiction. *British Journal of Medical Psychology*, 1970, 43: 141-159.

423. Zacune, J., Stimson, G., Ogborne, A., Mitcheson, M., & Kosviner, A. The assessment of heroin usage in a provincial community. In H. Steinberg (Ed.), *Scientific basis of drug dependence*. London: Churchill, 1969. Pp. 323-330.
424. Zijderveld, A. C. *The abstract society*. Garden City, N.Y.: Doubleday, 1970.
425. Zimmering, P., Toolan, J., Safrin, R., & Wortis, S. B. Drug addiction in relation to problems of adolescence. *American Journal of Psychiatry*, 1952-1953, 109: 272-277.
426. Zinberg, N. E., & Weil, A. T. A comparison of marijuana users and non-users. *Nature*, 1970, 226: 119-123.
427. Zucker, R. A. Sex-role identity patterns and drinking behavior of adolescents. *Quarterly Journal of Studies on Alcohol*, 1968, 29: 868-884.
428. Zwerling, I., & Rosenbaum, M. Alcoholic addiction and personality (nonpsychotic conditions). In S. Arieti (Ed.), *American handbook of psychiatry*. Vol. I. New York: Basic, 1959. Pp. 623-644.

Conviction Statistics for Drug Offences

The tables appearing in this appendix provide data on convictions and sentences under the *Narcotic Control Act* and the *Food and Drugs Act*, Parts III and IV, for the years 1970, 1971 and 1972. The tables were presented to the Commission by the Bureau of Dangerous Drugs of the Health Protection Branch, Department of National Health and Welfare.

The sections of Part IV of the *Food and Drugs Act* creating the offences of possession, trafficking and possession for the purpose of trafficking were re-numbered in the Revised Statutes of Canada 1970. The B.D.D.'s conviction statistics for 1970 were released prior to publication of the Revised Statutes, with the result that they contained the previous numbering of these three sections. This is reflected in Tables E.48 to E.77 of this appendix in which these sections appear as 40(1), 41(1) and 41(2) respectively in 1970 and as 41(1), 42(1) and 42(2) respectively in 1971 and 1972.

In the fall of 1972 the Bureau of Dangerous Drugs, at the request of the Commission, prepared tabulations of convictions involving LSD and MDA during 1970 and 1971 by type of offence. These special tabulations reflected an increase in the total number of convictions involving these drugs over the totals presented in the Bureau's annual conviction statistics for those years. This increase is the result of convictions reported to the Bureau subsequent to the publication of its annual statistics. The Bureau's annual statistics of convictions involving LSD and MDA are presented in Tables E.48 to E.53; the special tabulations prepared at the request of the Commission are presented in Tables E.54 to E.77.

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TABLE E.1
STATEMENT SHOWING CONVICTIONS RECORDED UNDER THE NARCOTIC CONTROL ACT IN 1970

Province	Section of Act							TOTAL		Pim- Di- ino- lau- dine did	Metha- done	Anil- eri- dine	Co- Opium caine	TOTAL
	3(1)	4(1)	4(2)	5(1)	6(1)	3(3) Reg's	Mari- huana	Heroin	Mor- phine	Cod- eine	Oxy- codone	Pethi- dine		
Nfld.....	20	3	1	—	—	—	24	—	—	—	—	—	—	24
P.E.I.....	9	1	—	—	—	—	9	—	—	1	—	—	—	10
N.S.....	91	12	9	—	—	—	109	—	—	—	—	2	—	112
N.B.....	66	13	10	—	—	—	85	1	1	1	—	—	—	89
Que.....	894	26	78	25	—	—	1,001	12	4	—	1	—	—	1,027
Ont.....	2,254	123	147	2	4	3	2,533	92	1	4	—	2	5	2,533
Man.....	145	49	14	—	4	—	189	10	3	2	—	6	—	212
Sask.....	281	24	13	—	6	3	317	—	—	3	—	3	—	327
Alta.....	455	94	37	1	—	1	588	5	5	4	—	3	—	588
B.C.....	1,415	257	88	—	29	1	1,790	263	—	6	—	—	—	1,790
Yukon.....	27	4	2	—	—	—	33	—	—	—	—	—	—	33
TOTAL....	5,657	606	399	28	43	12	6,745	383	14	21	1	14	8	6,745

Section 3(1)—Possession.

Section 4(1)—Trafficking.

Section 4(2)—Possession for the purpose of trafficking.

Section 5(1)—Importing.

Section 6(1)—Cultivating.

Section 3(3) Reg's—Obtaining drugs from more than one physician.

TABLE E.2
STATEMENT SHOWING CONVICTIONS RECORDED UNDER THE NARCOTIC CONTROL ACT IN 1971

Province	Section of Act						TOTAL		Mari- huana	Her- oin	Mor- phine	Cod- eine	Oxy- co- done	Pim- ino- dine	Meth- adone	Al- leged Nar- Co- caine	TOTAL		
	3(1)	4(1)	4(2)	5(1)	6(1)	3(3) Reg'ns													
Nfld.....	81	11	8	—	—	—	100	100	—	—	—	—	—	—	—	—	100		
P.E.I.....	19	4	—	—	—	—	23	23	—	—	—	—	—	—	—	—	23		
N.S.....	182	6	10	1	—	—	199	198	1	—	—	—	—	—	—	—	199		
N.B.....	105	8	14	—	—	—	127	127	—	—	—	—	—	—	—	—	127		
Que.....	1,218	21	89	17	13	16	1,374	1,341	6	4	—	1	3	18	1	—	1,374		
Ont.....	3,764	148	247	3	13	1	4,176	4,046	90	13	1	1	4	1	13	2	4,176		
Man.....	236	71	28	3	—	2	340	324	14	—	—	—	—	2	—	—	340		
Sask.....	378	26	30	—	1	—	435	418	1	—	4	—	4	3	3	1	435		
Alta.....	642	46	47	1	3	—	739	695	28	2	2	—	1	4	—	7	739		
B.C.....	2,178	222	126	1	28	27	2,582	2,165	361	3	1	—	2	2	42	6	2,582		
Yukon & N.W.T.....	37	2	3	—	—	—	42	41	1	—	—	—	—	—	—	—	42		
TOTAL.....	8,840	565	602	26	58	46	10,137	9,478	502	22	8	2	14	3	82	6	1	19	10,137

Section 3(1)—Possession.

Section 4(1)—Trafficking.

Section 4(2)—Possession for the purpose of trafficking.

Section 5(1)—Importing.

Section 6(1)—Cultivating.

Section 3(3) Reg'ns—Obtaining drugs from more than one physician.

TABLE E.3
STATEMENT SHOWING CONVICTIONS RECORDED UNDER THE NARCOTIC CONTROL ACT IN 1972

Province	Section of Act						Mari- huana	Mor- phine	Cod- eine	Oxy- done	Pethi- dine	Di- phen- oxy- late	Metha- done	Opium	Anil- eri- dine	Co- caine	TOTAL
	3(1)	4(1)	4(2)	5(1)	6(1)	3(3)											
Nfld.....	95	20	10	—	—	—	125	—	—	—	—	—	—	—	—	—	125
P.E.I.....	31	1	1	—	—	—	33	—	—	—	—	—	—	—	—	—	33
N.S.....	266	8	28	—	2	—	298	1	—	—	2	—	—	—	1	1	304
N.B.....	108	14	6	3	—	—	131	—	—	—	—	—	—	—	—	—	131
Que.....	1,016	27	114	21	7	17	1,202	18	1	—	2	—	22	3	—	4	1,202
Ont.....	4,738	143	274	8	20	1	5,184	161	1	1	7	—	15	3	—	22	5,184
Man.....	414	19	35	—	3	—	471	20	—	—	1	—	—	—	—	—	471
Sask.....	521	20	24	—	4	2	571	5	1	2	3	—	4	—	—	—	571
Alta.....	1,052	95	75	3	9	—	1,234	133	3	—	—	—	—	—	—	7	1,234
B.C.....	3,085	127	186	—	28	18	3,444	585	4	—	2	1	40	—	—	9	3,444
Yukon & N.W.T.....	105	1	4	—	2	—	112	—	—	—	—	—	—	—	—	1	112
TOTAL.....	11,431	475	757	35	75	38	12,811	923	16	8	1	17	1	81	6	1	12,811

Section 3(1)—Possession.

Section 4(1)—Trafficking.

Section 4(2)—Possession for the purpose of trafficking.

Section 5(1)—Importing.

Section 6(1)—Cultivating.

Section 3(3) Reg's—Obtaining drugs from more than one physician.

TABLE E.4
STATEMENT SHOWING SENTENCE AWARDED BY PROVINCE UNDER THE NARCOTIC CONTROL ACT IN 1970

Province	Fine Only	Proba- tion or S/S*	Inde- finite Period	Under 6 mos.	6 mos. to 1 yr.	1 yr. 2 yrs.	2 yrs. 3 yrs.	3 yrs. 4 yrs.	4 yrs. 5 yrs.	5 yrs. 6 yrs.	6 yrs. 7 yrs.	7 yrs. 8 yrs.	8 yrs. 9 yrs.	9 yrs. 10 yrs.	10 yrs. and over	TOTAL
Newfoundland.....	20	—	—	1	—	1	2	—	—	—	—	—	—	—	—	24
Prince Edward Island.....	9	—	—	—	1	—	—	—	—	—	—	—	—	—	—	10
Nova Scotia.....	78	16	—	11	5	—	2	—	—	—	—	—	—	—	—	112
New Brunswick.....	59	3	2	7	3	10	3	1	—	1	—	—	—	—	—	89
Quebec.....	618	179	6	141	22	1	17	10	1	—	—	24	4	—	4	1,027
Ontario.....	1,634	481	21	199	85	51	7	6	12	32	1	3	—	—	1	2,533
Manitoba.....	101	37	3	11	10	17	15	10	4	1	3	—	—	—	—	212
Saskatchewan.....	205	51	—	42	8	19	1	—	1	—	—	—	—	—	—	327
Alberta.....	277	156	—	42	22	75	7	5	1	—	—	2	—	—	1	588
British Columbia.....	713	519	—	246	120	80	47	25	14	9	—	6	4	—	7	1,790
Yukon.....	16	3	—	10	—	3	1	—	—	—	—	—	—	—	—	33
TOTAL.....	3,730	1,445	32	710	276	257	102	57	33	43	4	35	8	—	13	6,745

*Probation or Suspended Sentence.

TABLE E.5

STATEMENT SHOWING SENTENCE AWARDED BY PROVINCE UNDER THE NARCOTIC CONTROL ACT IN 1971

Province	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Nfld.....	74	5	—	8	4	6	3	—	—	—	—	—	—	—	—	100
P.E.I.....	19	—	—	3	1	—	—	—	—	—	—	—	—	—	—	23
N.S.....	147	28	—	10	5	—	8	—	—	—	—	1	—	—	—	199
N.B.....	92	5	—	8	3	17	1	1	—	—	—	—	—	—	—	127
Que.....	961	214	2	118	18	23	13	5	1	—	—	14	—	—	5	1,374
Ont.....	2,999	579	10	333	156	59	12	11	8	4	1	1	1	—	2	4,176
Man.....	182	55	—	28	23	27	15	6	—	1	—	—	—	—	3	340
Sask.....	261	86	—	46	17	20	—	—	—	5	—	—	—	—	—	435
Alta.....	485	115	—	32	38	47	3	10	3	2	—	3	—	—	1	739
B.C.....	1,412	584	1	251	134	97	26	33	15	11	2	3	2	1	10	2,582
Yukon & N.W.T.....	25	3	—	11	1	2	—	—	—	—	—	—	—	—	—	42
TOTAL.....	6,657	1,674	13	848	400	298	81	66	27	23	3	22	3	1	21	10,137

*Probation or Suspended Sentence.

TABLE E.6
STATEMENT SHOWING SENTENCE AWARDED BY PROVINCE UNDER THE NARCOTIC CONTROL ACT IN 1972

Province	Fine only	Probation or S/S*	A/D†	C/D‡	In-definite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. to 12 yrs.	12 yrs. to 15 yrs.	15 yrs. to 20 yrs.	20 yrs. and over	TOTAL
Nfld.....	77	5	—	16	—	13	8	2	3	1	—	—	—	—	—	—	—	—	—	125
P.E.I.....	31	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	33
N.S.....	206	41	16	8	1	14	4	6	8	—	—	—	—	—	—	—	—	—	—	304
N.B.....	89	5	7	1	—	3	4	12	1	3	—	1	—	—	2	3	—	—	—	131
Que.....	694	220	33	41	—	126	21	27	8	2	—	3	—	17	—	3	—	1	6	1,202
Ont.....	3,271	412	453	458	1	326	106	65	25	13	14	17	4	12	2	2	1	—	—	5,184
Man.....	281	52	59	23	—	23	12	10	4	—	2	1	1	—	1	—	—	1	1	471
Sask.....	317	95	42	42	—	44	18	11	1	—	—	1	—	—	—	—	—	—	—	571
Alta.....	784	141	10	20	—	60	61	53	14	18	12	8	4	26	4	17	—	1	1	1,234
B.C.....	1,942	597	75	107	—	338	149	122	32	28	11	12	2	8	3	6	6	2	1	3,444
Yukon & N.W.T.....	96	2	1	1	—	8	2	2	—	—	—	—	—	—	—	—	—	—	—	112
TOTAL.....	7,788	1,570	696	717	2	956	386	310	96	65	39	43	11	63	12	31	7	4	9	6 12,811

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.7

STATEMENT SHOWING AGE AND SEX GROUPS BY PROVINCE OF PERSONS CONVICTED UNDER THE NARCOTIC CONTROL ACT IN 1970

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		70 and over		Not known		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Nfld.....	1	—	10	—	9	—	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	24	—
P.E.I.....	1	—	1	—	7	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	1
N.S.....	20	1	40	4	27	3	7	1	2	—	1	1	—	—	—	—	—	—	—	—	—	—	97	9
N.B.....	7	4	33	2	23	3	5	2	2	—	—	—	2	—	—	—	—	—	—	—	—	—	72	11
Que.....	94	11	367	32	290	21	105	11	21	4	15	2	3	1	2	—	—	—	—	—	—	—	897	82
Ont.....	322	29	826	79	716	53	178	16	39	5	18	6	9	4	4	1	—	—	—	—	7	—	2,119	193
Man.....	22	3	62	9	62	3	11	—	5	2	—	—	—	—	—	—	—	—	—	—	—	—	162	17
Sask.....	40	4	83	11	113	10	27	1	7	—	3	—	1	—	—	—	—	—	—	—	—	—	274	26
Alta.....	68	10	183	23	159	6	36	2	13	—	3	—	2	—	—	—	—	—	—	—	1	—	465	41
B.C.....	191	25	488	53	431	45	198	21	54	16	31	2	36	2	4	—	1	—	—	—	—	—	1,434	155
Yukon.....	1	—	8	2	12	—	7	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	30	2
TOTAL.....	767	87	2,101	215	1,849	145	577	54	144	27	72	11	54	7	10	1	1	—	—	—	8	—	5,583	547

TABLE E.8
STATEMENT SHOWING AGE AND SEX GROUPS BY PROVINCE OF PERSONS CONVICTED UNDER THE NARCOTIC CONTROL ACT IN 1971

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		70 and over		Not known		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Nfld.....	7	3	44	2	30	2	6	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	87	8
P.E.I.....	—	—	11	1	8	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	3
N.S.....	19	3	83	5	57	5	11	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	172	14
N.B.....	20	—	48	4	41	—	7	2	3	—	—	—	1	—	—	—	—	—	—	—	—	—	120	6
Que.....	40	18	419	33	400	34	153	19	43	6	10	—	17	1	3	—	2	—	—	—	—	—	1,187	111
Ont.....	601	57	1,377	142	1,159	95	380	49	87	12	25	2	19	4	4	—	2	—	—	—	5	—	3,559	361
Man.....	18	6	98	12	106	12	38	3	4	—	—	—	1	—	—	—	—	—	—	—	—	—	265	33
Sask.....	38	6	139	12	137	10	43	5	7	—	1	—	1	—	—	—	—	—	—	—	—	—	366	33
Alta.....	84	5	249	33	201	17	64	3	17	1	5	—	3	1	1	—	—	—	—	3	—	—	627	60
B.C.....	254	26	669	70	620	73	328	32	91	18	35	5	33	1	8	—	2	—	—	—	6	1	2,046	226
Yukon and N.W.T.	1	1	9	—	11	1	8	1	4	—	—	—	—	—	—	—	—	—	—	—	—	—	33	3
TOTAL.....	1,082	125	3,146	314	2,770	251	1,039	115	257	38	77	7	75	7	16	—	6	—	—	—	14	1	8,482	858

TABLE E.9

STATEMENT SHOWING AGE AND SEX GROUPS BY PROVINCE OF PERSONS CONVICTED UNDER THE NARCOTIC CONTROL ACT IN 1972

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		70 and over		Not known		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Nfld.....	13	3	58	5	27	3	8	1	1	—	—	—	—	—	—	—	—	—	—	1	1	108	13	
P.E.I.....	3	1	19	—	6	1	2	—	—	—	—	—	—	—	—	—	—	—	—	1	—	31	2	
N.S.....	29	7	94	16	82	7	34	3	10	—	—	—	3	—	—	—	—	—	—	2	—	254	33	
N.B.....	10	1	42	1	35	2	19	3	2	1	1	—	1	—	—	—	—	—	—	2	—	112	8	
Que.....	153	16	497	41	503	41	177	19	65	6	18	—	14	—	1	1	1	—	—	5	—	1,434	124	
Ont.....	539	61	1,694	168	1,470	146	493	63	122	17	47	6	22	5	3	1	1	—	—	58	4	4,449	471	
Man.....	31	3	159	17	149	18	56	8	7	—	1	—	—	—	1	—	1	—	—	—	—	404	47	
Sask.....	70	6	195	12	164	15	57	2	9	1	1	1	1	—	—	—	—	—	—	—	—	497	37	
Alta.....	124	12	438	45	317	27	100	13	12	—	7	1	8	2	1	—	—	—	—	13	1	1,020	101	
B.C.....	294	38	991	125	814	89	340	49	110	20	59	10	37	4	4	—	3	—	—	88	7	2,740	342	
Yukon.....	10	1	25	1	41	4	19	2	2	—	—	—	—	—	—	—	—	—	—	—	—	97	8	
TOTAL.....	1,276	149	4,212	431	3,608	353	1,305	163	340	45	134	18	86	11	10	2	5	1	—	170	13	11,146	1,186	

TABLE E.10
STATEMENT OF CONVICTIONS INVOLVING HEROIN IN 1970

Province	Section of Act				TOTAL
	3(1)	4(1)	4(2)	5(1)	
Newfoundland.....	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—
Nova Scotia.....	—	—	—	—	—
New Brunswick.....	—	—	1	—	1
Quebec.....	5	—	5	2	12
Ontario.....	23	63	6	—	92
Manitoba.....	2	6	2	—	10
Saskatchewan.....	—	—	—	—	—
Alberta.....	4	1	—	—	5
British Columbia.....	167	75	21	—	263
Yukon.....	—	—	—	—	—
TOTAL.....	201	145	35	2	383

Section 3(1)—Possession.

Section 4(1)—Trafficking.

Section 4(2)—Possession for the purpose of trafficking.

Section 5(1)—Importing.

TABLE E.11
STATEMENT OF CONVICTIONS INVOLVING HEROIN IN 1971

Province	Section of Act				TOTAL
	3(1)	4(1)	4(2)	5(1)	
Newfoundland.....	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—
Nova Scotia.....	1	—	—	—	1
New Brunswick.....	—	—	—	—	—
Quebec.....	3	1	—	2	6
Ontario.....	66	14	9	1	90
Manitoba.....	12	—	2	—	14
Saskatchewan.....	1	—	—	—	1
Alberta.....	21	—	7	—	28
British Columbia.....	273	59	29	—	361
Yukon & North West Territories.....	1	—	—	—	1
TOTAL.....	378	74	47	3	502

3(1)—Possession.
4(1)—Trafficking.
4(2)—Possession for the purpose of trafficking.
5(1)—Importing.

TABLE E.12
STATEMENT OF CONVICTIONS INVOLVING HEROIN IN 1972

Province	Section of Act				TOTAL
	3(1)	4(1)	4(2)	5(1)	
Newfoundland.....	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—
Nova Scotia.....	1	—	—	—	1
New Brunswick.....	—	—	—	—	—
Quebec.....	8	4	4	2	18
Ontario.....	89	43	29	—	161
Manitoba.....	15	—	5	—	20
Saskatchewan.....	4	—	1	—	5
Alberta.....	54	55	24	—	133
British Columbia.....	459	72	54	—	585
Yukon & North West Territories.....	—	—	—	—	—
TOTAL.....	630	174	117	2	923

Section 3(1)—Possession.

Section 4(1)—Trafficking.

Section 4(2)—Possession for the purpose of trafficking.

Section 5(1)—Importing.

TABLE E.13

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1970

Section 3(1)—Possession

Age group	Fine only	Pro- bation or S/S*	Inde- finite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. 2 yrs.	2 yrs. 3 yrs.	3 yrs. 4 yrs.	4 yrs. 5 yrs.	5 yrs. 6 yrs.	6 yrs. 7 yrs.	7 yrs. 8 yrs.	8 yrs. 9 yrs.	9 yrs. 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	3	—	1	—	—	—	—	—	—	—	—	—	—	—	4
18-20.....	—	11	—	5	4	—	—	—	—	—	—	1	—	—	—	21
21-24.....	4	10	2	6	11	2	2	2	1	—	—	—	—	—	—	40
25-29.....	1	14	—	11	13	6	6	1	—	—	—	—	—	—	—	52
30-34.....	—	7	—	2	10	4	4	3	—	—	—	—	—	—	—	30
35-39.....	1	5	—	2	2	3	7	2	—	—	—	1	—	—	—	23
40-49.....	1	6	—	3	9	2	5	—	—	—	—	—	—	—	—	26
50-59.....	—	1	—	—	1	—	1	1	—	—	—	—	—	—	—	4
60-69.....	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
TOTAL.....	7	58	2	30	50	17	25	9	1	—	—	2	—	—	—	201

*Probation or Suspended Sentence.

TABLE E.14
AGE GROUP AND SENTENCE AWARDED IN CASES INVOLVING HEROIN IN 1971

Section 3(1)—Possession

Age group	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	6 mos. to 1 yr.		1 yr. to 2 yrs.		2 yrs. to 3 yrs.		3 yrs. to 4 yrs.		4 yrs. to 5 yrs.		5 yrs. to 6 yrs.		6 yrs. to 7 yrs.		7 yrs. to 8 yrs.		8 yrs. to 9 yrs.		9 yrs. to 10 yrs.		10 yrs. and over		TOTAL
					1 yr.	6 mos.	2 yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	7 yrs.	8 yrs.	9 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	10 yrs.	
Under 18.....	—	6	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
18-20.....	10	24	—	9	5	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	52
21-24.....	19	36	—	33	18	15	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	125
25-29.....	16	22	1	16	19	11	4	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	91
30-34.....	7	11	—	5	15	8	5	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	52
35-39.....	3	3	—	2	8	4	2	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	24
40-49.....	—	7	—	—	4	4	3	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21
50-59.....	—	1	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
60-69.....	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
TOTAL.....	55	110	1	67	71	46	18	8	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	378

*Probation or Suspended Sentence.

TABLE E.15
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1972
Section 3(1)—Possession

Age group	Fine only	Probation or S/S*	A/D†	C/D†	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	18	—	1	2	4	—	1	—	—	—	—	—	—	—	26
18-20.....	35	33	1	4	39	20	11	3	—	—	—	—	—	—	—	146
21-24.....	34	39	1	1	60	36	27	10	2	—	—	—	—	—	—	210
25-29.....	12	22	—	—	39	26	13	3	1	1	—	—	—	—	—	117
30-34.....	7	9	1	—	11	12	12	2	1	1	2	—	—	—	—	58
35-39.....	9	12	—	—	5	5	6	—	2	—	1	—	—	—	—	40
40-49.....	3	6	—	—	1	3	6	2	2	2	—	—	—	—	—	25
50-59.....	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
60-69.....	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	2
Unknown.....	—	3	—	—	1	—	—	—	—	—	—	—	—	—	—	4
TOTAL.....	100	144	3	6	159	106	76	21	8	4	3	—	—	—	—	630

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.16
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1970
Section 4(1)—Trafficking

Age group	Fine only	Probation or S/S*	Indefinite or nite Period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
18-20.....	3	2	—	1	—	5	—	1	1	—	—	—	—	—	—	13
21-24.....	—	—	14	—	—	4	11	6	7	—	3	—	—	—	—	45
25-29.....	—	—	—	—	1	5	5	—	9	7	—	—	3	—	—	30
30-34.....	—	—	—	1	—	2	2	—	2	—	—	—	—	—	—	7
35-39.....	—	—	—	—	—	1	—	1	3	1	—	3	—	—	2	11
40-49.....	—	—	—	—	—	—	1	3	—	27	—	1	—	—	—	32
50-59.....	—	—	—	—	—	—	—	1	—	3	1	—	—	—	—	5
60-69.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Not known.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
TOTAL.....	3	3	14	2	1	18	19	12	22	38	4	4	3	—	2	145

*Probation or Suspended Sentence.

TABLE E.17
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1971
Section 4(1)—Trafficking

Age group	Fine only	Probation or S/S* Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	2	—	—	—	—	—	—	—	2
21-24.....	1	—	1	—	—	3	4	2	1	1	—	—	—	—	13
25-29.....	—	1	—	1	3	2	9	2	2	—	—	1	—	1	22
30-34.....	—	—	—	—	4	2	3	3	—	—	—	—	—	2	14
35-39.....	—	—	—	—	4	—	4	—	1	—	2	—	—	—	11
40-49.....	—	2	—	—	1	1	4	1	2	—	—	—	—	1	12
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60-69.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	1	3	—	1	1	12	8	26	6	1	2	1	—	4	74

*Probation or Suspended Sentence.

TABLE E.18
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1972

Section 4(1)—Trafficking

Age group	Fine only	Probation or S/S*	Under 6 mos.	1 yr. to 1 yr.	2 yrs. to 2 yrs.	3 yrs. to 3 yrs.	4 yrs. to 4 yrs.	5 yrs. to 5 yrs.	6 yrs. to 6 yrs.	7 yrs. to 7 yrs.	8 yrs. to 8 yrs.	10 yrs. to 10 yrs.	12 yrs. to 12 yrs.	15 yrs. to 15 yrs.	20 yrs. to 20 yrs.	Life	TOTAL
Under 18.....	—	3	—	—	1	1	—	—	—	1	—	—	—	—	—	—	6
18-20.....	—	1	—	3	12	6	5	2	2	5	2	—	—	—	—	—	40
21-24.....	—	—	—	3	12	3	6	7	1	11	3	—	—	—	—	—	53
25-29.....	—	—	—	—	—	5	1	4	4	1	1	—	—	—	1	—	19
30-34.....	—	—	—	3	—	—	4	—	1	—	3	1	5	—	—	—	18
35-39.....	—	—	—	—	—	4	2	2	—	2	—	—	—	—	1	1	12
40-49.....	—	—	—	—	—	—	1	1	3	—	—	14	—	—	1	2	22
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
60-69.....	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
Unknown.....	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	2
TOTAL.....	—	4	—	9	25	19	19	15	16	7	25	6	17	5	—	3	4 174

*Probation or Suspended Sentence.

TABLE E.19

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1970

Section 4(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
18-20.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
21-24.....	—	—	—	—	—	2	1	1	1	1	—	1	—	—	—	7
25-29.....	—	—	—	1	1	1	—	1	1	—	—	2	2	—	1	10
30-34.....	—	—	—	—	—	—	2	—	1	2	—	—	—	—	1	6
35-39.....	—	—	—	—	—	—	—	—	1	—	—	—	—	—	4	5
40-49.....	—	—	—	—	—	1	—	—	1	1	—	—	—	—	2	5
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60-69.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Non known.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	—	1	—	1	1	5	3	2	5	4	—	3	2	—	8	35

*Probation or Suspended Sentence.

TABLE E.20
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1971
Section 4(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	1	—	—	—	2	—	—	1	1	—	1	—	—	—	6
21-24.....	—	—	—	1	1	—	1	3	1	—	—	1	—	—	—	8
25-29.....	1	—	—	1	1	1	1	3	3	1	2	—	1	1	5	21
30-34.....	—	1	—	—	—	—	1	1	—	—	—	—	1	—	—	4
35-39.....	—	—	—	—	—	1	1	—	1	—	—	—	—	—	1	4
40-49.....	—	—	—	—	—	—	1	—	—	2	—	1	—	—	—	4
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60-69.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	1	2	—	2	2	4	5	7	6	4	2	3	2	1	6	47

*Probation or Suspended Sentence.

TABLE E.21
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1972
Section 4(2)—Possession for the Purpose of Trafficking

Age group	Fine S/S*	Probation or Under 6 mos.										TOTAL									
		6 mos.	1 yr.	2 yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	7 yrs.	8 yrs.	10 yrs.	12 yrs.	15 yrs.	20 yrs.	over	Life					
Under 18.....	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2					
18-20.....	3	2	—	3	1	2	1	1	—	—	—	—	—	—	—	14					
21-24.....	3	1	1	4	1	4	5	6	1	5	1	1	—	—	—	33					
25-29.....	1	—	—	3	1	2	4	4	2	4	1	3	—	—	1	26					
30-34.....	—	1	1	4	1	2	2	1	—	1	—	4	1	—	—	18					
35-39.....	—	—	—	—	—	—	1	2	—	1	1	1	1	—	—	8					
40-49.....	—	—	—	—	5	—	—	1	—	1	—	—	—	3	1	11					
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	2					
60-69.....	—	—	—	—	—	1	—	—	—	—	—	—	—	1	—	2					
Unknown....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1					
TOTAL.....	9	4	3	14	9	11	13	15	4	12	3	9	2	2	5	2	117				

***Probation or Suspended Sentence.**

TABLE E.22
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1970

Section 5(1)—Importing

Age group	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21-24.....	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
25-29.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60-69.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2

*Probation or Suspended Sentence.

TABLE E.23

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1971
Section 5(1)—Importing

Age group	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
21-24.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25-29.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60-69.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	3

*Probation or Suspended Sentence.

TABLE E.24
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING HEROIN IN 1972
Section 5(1)—Importing

Age group	Fine only	Probation or S/S*	Under 6 mos.	1 yr. to 1 yr.	2 yrs. to 2 yrs.	3 yrs. to 3 yrs.	4 yrs. to 4 yrs.	5 yrs. to 5 yrs.	6 yrs. to 6 yrs.	7 yrs. to 7 yrs.	8 yrs. to 8 yrs.	10 yrs. to 10 yrs.	12 yrs. to 12 yrs.	15 yrs. to 15 yrs.	20 yrs. to 20 yrs.	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21-24.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25-29.....	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60-69.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	2

*Probation or Suspended Sentence.

TABLE E.25

STATEMENT OF CONVICTIONS INVOLVING METHADONE IN 1970

Province	Section of Act				TOTAL
	3(1)	4(1)	4(2)	3(3)	
Newfoundland.....	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—
Nova Scotia.....	—	—	—	—	—
New Brunswick.....	—	—	—	—	—
Quebec.....	1	—	—	3	4
Ontario.....	1	—	—	—	1
Manitoba.....	—	—	—	—	—
Saskatchewan.....	1	—	—	—	1
Alberta.....	—	—	—	—	—
British Columbia.....	5	2	—	1	8
Yukon and Northwest Territories.....	—	—	—	—	—
TOTAL.....	8	2	—	4	14

Section 3(1)—Possession.

Section 4(1)—Trafficking.

Section 4(2)—Possession for the purpose of trafficking.

Section 3(3)Reg's—Obtaining drugs from more than one physician.

TABLE E.26
STATEMENT OF CONVICTIONS INVOLVING METHADONE IN 1971

Province	Section of Act				TOTAL
	3(1)	4(1)	4(2)	3(3)	
Newfoundland.....	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—
Nova Scotia.....	—	—	—	—	—
New Brunswick.....	—	—	—	—	—
Quebec.....	2	—	—	16	18
Ontario.....	12	—	1	—	13
Manitoba.....	—	—	—	2	2
Saskatchewan.....	3	—	—	—	3
Alberta.....	2	1	1	—	4
British Columbia.....	16	2	—	25	43
Yukon and Northwest Territories.....	—	—	—	—	—
TOTAL.....	35	3	2	43	83

Section 3(1)—Possession.
Section 4(1)—Trafficking.
Section 4(2)—Possession for the purpose of trafficking.
Section 3(3) Reg'ns—Obtaining drugs from more than one physician.

TABLE E.27

STATEMENT OF CONVICTIONS INVOLVING METHADONE IN 1972

Province	Section of Act				TOTAL
	3(1)	4(1)	4(2)	3(3)	
Newfoundland.....	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—
Nova Scotia.....	—	—	—	—	—
New Brunswick.....	—	—	—	—	—
Quebec.....	5	—	—	17	22
Ontario.....	13	—	1	1	15
Manitoba.....	—	—	—	—	—
Saskatchewan.....	2	—	—	2	4
Alberta.....	—	—	—	—	—
British Columbia.....	18	3	1	18	40
Yukon and Northwest Territories.....	—	—	—	—	—
TOTAL.....	38	3	2	38	81

Section 3(1)—Possession.

Section 3(3)Reg's—Obtaining drugs from more than one physician.

Section 4(1)—Trafficking.

Section 4(2)—Possession for the purpose of trafficking.

TABLE E. 28
AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1970
Section 3(1)—Possession

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
21-24.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
25-29.....	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
30-34.....	1	1	—	—	—	1	—	—	—	—	—	—	—	—	—	3
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	1	5	—	—	—	2	—	—	—	—	—	—	—	—	—	8

*Probation or Suspended Sentence.

TABLE E.29

AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1971

Section 3(1)—Possession

Age group	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
18-20.....	4	4	—	1	—	—	—	—	—	—	—	—	—	—	—	9
21-24.....	4	7	—	3	1	—	—	—	—	—	—	—	—	—	—	15
25-29.....	1	2	—	—	1	—	—	—	—	—	—	—	—	—	—	4
30-34.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
35-39.....	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
40-49.....	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	2
50-59.....	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	9	18	—	4	3	1	—	—	—	—	—	—	—	—	—	35

*Probation or Suspended Sentence.

TABLE E.30
AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1972
Section 3(1)—Possession

Age group	Fine only	Proba- tion or S/S*	A/D†	C/D‡	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	4	—	1	—	—	1	—	1	—	—	—	—	—	—	—	7
21-24.....	7	6	—	—	3	—	1	—	—	—	—	—	—	—	—	17
25-29.....	1	2	—	—	2	1	1	1	—	—	—	—	—	—	—	8
30-34.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
35-39.....	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	2
40-49.....	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
TOTAL.....	15	9	1	—	5	3	3	2	—	—	—	—	—	—	—	38

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.31

AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1970
Section 4(1)—Trafficking

Age group	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21-24.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25-29.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
TOTAL.....	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2

*Probation or Suspended Sentence.

TABLE E.32
AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1971
Section 4(1)—Trafficking

Age group	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21-24.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
25-29.....	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
30-34.....	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	—	—	—	—	—	1	1	1	—	—	—	—	—	—	—	3

*Probation or Suspended Sentence.

TABLE E.33

AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1972

Section 4(1)—Trafficking

Age group	Fine only	Probation or S/S*	A/D†	C/D†	Under 6 mos.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
21-24.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25-29.....	—	1	—	—	—	1	—	—	—	—	—	—	—	—	2
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	—	2	—	—	—	1	—	—	—	—	—	—	—	—	3

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.34
AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1971*

Section 4(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/St	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21-24.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25-29.....	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2

*No table presented here for 1970, as there were no convictions under Section 4(2) involving methadone in 1970.

†Probation or Suspended Sentence.

TABLE E.35

AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1972

Section 4(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	A/D†	C/D‡	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21-24.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25-29.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	2

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.36
AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1970
Section 3(3) Reg's—Obtaining Drugs from More than One Physician

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21-24.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
25-29.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35-39.....	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
40-49.....	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	3	—	—	1	—	—	—	—	—	—	—	—	—	—	—	4

*Probation or Suspended Sentence.

TABLE E.37

AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1971
Section 3(3) Reg's—Obtaining Drugs from More than One Physician

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	4	1	—	4	—	—	—	—	—	—	—	—	—	—	—	9
21-24.....	1	4	—	1	—	—	—	—	—	—	—	—	—	—	—	6
25-29.....	5	4	—	3	—	—	—	—	—	—	—	—	—	—	—	12
30-34.....	4	1	—	—	—	—	—	—	—	—	—	—	—	—	—	5
35-39.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
40-49.....	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	5
50-59.....	1	—	—	4	—	—	—	—	—	—	—	—	—	—	—	5
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	16	10	—	17	—	—	—	—	—	—	—	—	—	—	—	43

*Probation or Suspended Sentence.

TABLE E.38
AGE GROUPS AND SENTENCES AWARDED IN CASES INVOLVING METHADONE IN 1972
Section 3(3) Reg's—Obtaining Drugs from More than One Physician

Age group	Fine only	Probation or S/S*	A/D†	C/D†	Under 6 mos.	6 mos. 1 yr.	1 yr. 2 yrs.	2 yrs. 3 yrs.	3 yrs. 4 yrs.	4 yrs. 5 yrs.	5 yrs. 6 yrs.	6 yrs. 7 yrs.	7 yrs. 8 yrs.	8 yrs. 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	5
21-24.....	4	8	—	—	2	—	—	—	—	—	—	—	—	—	—	14
25-29.....	1	2	1	—	—	—	—	—	—	—	—	—	—	—	—	4
30-34.....	1	6	—	—	—	—	—	—	—	—	—	—	—	—	—	7
35-39.....	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	3
40-49.....	—	2	—	—	3	—	—	—	—	—	—	—	—	—	—	5
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	9	21	1	—	7	—	—	—	—	—	—	—	—	—	—	38

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge

TABLE E.39

CONVICTIONS UNDER THE FOOD AND DRUGS ACT, PART III, IN 1970

Province	Section of Act		G.03.001 Regulations	TOTAL	Drugs involved					TOTAL
	32(1)	32(2)			Amphet-amine	Metham-phetamine	Pento-barbital	Pheno-barbital	Seco-barbital	
Newfoundland.....	—	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—	—	—	—	—	—
Nova Scotia.....	1	4	—	5	2	2	—	1	—	5
New Brunswick.....	—	4	—	4	—	4	—	—	—	4
Quebec.....	3	7	1	11	3	2	1	1	4	11
Ontario.....	23	38	—	61	3	44	—	2	12	61
Manitoba.....	1	1	—	2	1	1	—	—	—	2
Saskatchewan.....	—	—	—	—	—	—	—	—	—	—
Alberta.....	8	1	—	9	1	6	—	—	2	9
British Columbia.....	17	4	—	21	3	5	—	1	12	21
Yukon.....	—	—	—	—	—	—	—	—	—	—
TOTAL.....	53	59	1	113	13	64	1	5	30	113

Section 32(1)—Trafficking.

Section 32(2)—Possession for the purpose of trafficking.

G.03.001 Regulations—Failure of pharmacist to prepare required records

TABLE E.40
CONVICTIONS UNDER THE FOOD AND DRUGS ACT, PART III, IN 1971

Province	Section of Act		G.03.001 Regulations	TOTAL	Drugs involved				TOTAL
	34(1)	34(2)			Phen- metrazine	Amphet- amine	Metham- phetamine	Barbiturates	
Newfoundland.....	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	1	—	—	1	—	—	1	—	1
Nova Scotia.....	2	1	—	3	—	2	1	—	3
New Brunswick.....	1	1	—	2	—	—	1	1	2
Quebec.....	—	7	—	7	1	—	6	—	7
Ontario.....	39	73	—	112	—	—	102	10	112
Manitoba.....	1	—	—	1	—	—	1	—	1
Saskatchewan.....	—	4	—	4	—	3	—	1	4
Alberta.....	1	16	—	17	1	—	7	9	17
British Columbia.....	2	8	—	10	—	—	4	6	10
Yukon and Northwest Territories.....	—	—	—	—	—	—	—	—	—
TOTAL.....	47	110	—	157	2	5	123	27	157

Section 34(1)—Trafficking.

Section 34(2)—Possession for the purpose of trafficking.

G.03.001 Regulations—Failure of pharmacist to prepare required records.

TABLE E.41

CONVICTIONS UNDER THE FOOD AND DRUGS ACT, PART III, IN 1972

Province	Section of Act		G.03.001 Regulations	TOTAL	Drugs involved				TOTAL
	34(1)	34(2)			Phen- metrazine	Amphet- amine	Metham- phetamine	Barbiturates	
Newfoundland.....	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	1	—	—	1	—	—	1	—	1
Nova Scotia.....	—	4	—	4	—	—	4	—	4
New Brunswick.....	6	—	—	6	1	1	4	—	6
Quebec.....	1	23	—	24	10	—	13	1	24
Ontario.....	69	146	—	215	3	2	204	6	215
Manitoba.....	3	8	—	11	6	1	2	2	11
Saskatchewan.....	3	3	—	6	1	2	1	2	6
Alberta.....	3	4	—	7	—	—	6	1	7
British Columbia.....	7	13	—	20	1	1	13	5	20
Yukon and Northwest Territories.....	—	—	—	—	—	—	—	—	—
TOTAL.....	93	201	—	294	22	7	248	17	294

Section 34(1)—Trafficking.

Section 34(2)—Possession for the purpose of trafficking.

G.03.001 Regulations—Failure of pharmacist to prepare required records.

TABLE E.42
STATEMENT SHOWING SENTENCE AWARDED BY PROVINCE UNDER THE FOOD AND DRUGS ACT, PART III, IN 1970

Province	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Newfoundland.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia.....	—	1	—	—	2	1	1	—	—	—	—	—	—	—	—	5
New Brunswick.....	—	—	—	—	—	2	2	—	—	—	—	—	—	—	—	4
Quebec.....	2	2	—	3	2	—	—	1	—	—	—	—	1	—	—	11
Ontario.....	2	1	3	15	12	24	1	2	1	—	—	—	—	—	—	61
Manitoba.....	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	2
Saskatchewan.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alberta.....	3	—	—	—	2	3	1	—	—	—	—	—	—	—	—	9
British Columbia.....	1	4	—	1	5	5	2	3	—	—	—	—	—	—	—	21
Yukon.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	9	8	3	19	23	35	8	6	1	—	—	—	1	—	—	113

*Probation or Suspended Sentence.

TABLE E.43

STATEMENT SHOWING SENTENCE AWARDED BY PROVINCE UNDER THE FOOD AND DRUGS ACT, PART III, IN 1971

Province	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Newfoundland.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
Nova Scotia.....	—	—	—	1	1	—	1	—	—	—	—	—	—	—	—	3
New Brunswick.....	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	2
Quebec.....	—	1	—	2	2	1	1	—	—	—	—	—	—	—	—	7
Ontario.....	6	4	—	41	35	17	5	2	2	—	—	—	—	—	—	112
Manitoba.....	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Saskatchewan.....	—	1	—	—	2	1	—	—	—	—	—	—	—	—	—	4
Alberta.....	—	1	—	—	2	10	2	2	—	—	—	—	—	—	—	17
British Columbia.....	—	1	—	2	4	1	1	—	1	—	—	—	—	—	—	10
Yukon and Northwest Territories.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	6	10	—	47	46	30	10	5	3	—	—	—	—	—	—	157

*Probation or Suspended Sentence.

TABLE E.44
STATEMENT SHOWING SENTENCE AWARDED BY PROVINCE UNDER THE FOOD AND DRUGS ACT, PART III, IN 1972

Province	Fine only	Probation or S/S*	A/D†	C/D‡	Under 6 mos.	6 mos. 1 yr.	1 yr. 2 yrs.	2 yrs. 3 yrs.	3 yrs. 4 yrs.	4 yrs. 5 yrs.	5 yrs. 6 yrs.	6 yrs. 7 yrs.	7 yrs. 8 yrs.	8 yrs. 10 yrs.	10 yrs. and over	TOTAL
Newfoundland.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Nova Scotia.....	—	—	—	—	—	2	—	—	1	1	—	—	—	—	—	4
New Brunswick.....	—	—	—	—	—	—	3	—	3	—	—	—	—	—	—	6
Quebec.....	3	5	—	—	7	3	6	—	—	—	—	—	—	—	—	24
Ontario.....	3	13	2	—	64	58	54	14	4	—	3	—	—	—	—	215
Manitoba.....	2	1	—	—	2	2	3	1	—	—	—	—	—	—	—	11
Saskatchewan.....	1	—	—	—	—	2	3	—	—	—	—	—	—	—	—	6
Alberta.....	—	1	—	—	—	2	3	—	1	—	—	—	—	—	—	7
British Columbia.....	1	5	—	—	2	5	6	—	—	—	1	—	—	—	—	20
Yukon and Northwest Territories.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	10	25	2	—	75	75	78	15	9	1	4	—	—	—	—	294

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.45

STATEMENT SHOWING AGE AND SEX GROUPS BY PROVINCE OF PERSONS CONVICTED UNDER THE FOOD AND DRUGS ACT, PART III, IN 1970

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		70 and over		Not known		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Newfoundland.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nova Scotia.....	—	—	2	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—
New Brunswick.....	—	—	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1
Quebec.....	1	—	1	—	2	—	—	1	1	—	4	—	1	—	—	—	—	—	—	—	—	—	10	1
Ontario.....	4	—	19	2	18	2	9	—	1	—	—	—	3	—	3	—	—	—	—	—	—	—	57	4
Manitoba.....	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
Saskatchewan.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alberta.....	2	—	2	—	2	—	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	9	—
British Columbia.....	1	—	2	—	6	—	4	1	1	—	1	—	1	1	—	—	3	—	—	—	—	—	19	2
Yukon.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	8	—	28	3	33	2	14	2	5	—	6	—	5	1	3	—	3	—	—	—	—	—	105	8

TABLE E.46

STATEMENT SHOWING AGE AND SEX GROUPS BY PROVINCE OF PERSONS CONVICTED UNDER THE FOOD AND DRUGS ACT, PART III, IN 1971

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		70 and over		Not known		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Newfoundland.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Nova Scotia.....	—	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	3	—
New Brunswick.....	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
Quebec.....	1	—	1	—	4	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	7	—
Ontario.....	5	1	27	3	36	2	13	1	3	—	4	—	2	—	2	—	2	—	—	—	—	—	94	7
Manitoba.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Saskatchewan.....	1	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—
Alberta.....	—	—	4	1	5	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	1
British Columbia.....	—	—	3	1	—	—	1	—	1	1	1	—	—	—	—	—	1	—	—	—	—	—	7	2
Yukon and Northwest Territories.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	9	1	36	5	50	2	16	1	5	1	5	—	3	—	2	—	3	—	—	—	—	—	129	10

TABLE E.47

STATEMENT SHOWING AGE AND SEX GROUPS BY PROVINCE OF PERSONS CONVICTED UNDER THE FOOD AND DRUGS ACT, PART III, IN 1972

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		70 and over		Not known		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Newfoundland.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Prince Edward Island.....	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Nova Scotia.....	—	—	—	1	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	3	1
New Brunswick.....	—	—	1	—	1	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	4	—
Quebec.....	—	—	5	—	7	—	5	—	1	1	1	—	2	—	—	—	—	—	—	—	—	—	21	1
Ontario.....	9	1	29	7	67	8	31	5	8	1	5	1	3	—	1	1	—	—	—	—	—	—	153	24
Manitoba.....	1	—	1	—	6	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	—
Saskatchewan.....	—	—	2	—	1	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	5	—
Alberta.....	—	—	2	1	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	1
British Columbia.....	2	1	2	1	4	—	4	1	1	—	1	—	2	—	1	—	—	—	—	—	—	—	17	3
Yukon and Northwest Territories.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	12	2	42	10	93	8	43	6	11	2	8	1	8	—	2	1	—	—	—	—	—	—	219	30

TABLE E.48
CONVICTIONS UNDER THE FOOD AND DRUGS ACT, PART IV, IN 1970

Province	Section of Act			Drugs involved			TOTAL
	40(1)	41(1)	41(2)	L.S.D.	S.T.P.	M.D.A.	
Newfoundland.....	5	1	—	6	—	—	6
Prince Edward Island.....	1	—	1	2	—	—	2
Nova Scotia.....	22	4	3	28	1	—	29
New Brunswick.....	8	8	13	29	—	—	29
Quebec.....	172	9	39	216	—	4	220
Ontario.....	386	59	93	496	2	40	538
Manitoba.....	50	30	10	85	1	4	90
Saskatchewan.....	57	10	15	82	—	—	82
Alberta.....	115	120	48	264	7	12	283
British Columbia.....	190	111	59	346	2	12	360
Yukon.....	3	1	—	4	—	—	4
TOTAL.....	1,009	353	281	1,558	13	72	1,643

Section 40(1)—Possession.

Section 41(1)—Trafficking.

Section 41(2)—Possession for the purpose of trafficking.

TABLE E.49

CONVICTIONS UNDER THE FOOD AND DRUGS ACT, PART IV, IN 1971

Province	Section of Act			TOTAL	Drugs involved				TOTAL
	41(1)	42(1)	42(2)		L.S.D.	S.T.P.	M.D.A.	L.B.J.	
Newfoundland.....	13	2	3	18	18	—	—	—	18
Prince Edward Island.....	—	4	—	4	4	—	—	—	4
Nova Scotia.....	24	6	6	36	34	—	2	—	36
New Brunswick.....	16	7	9	32	26	1	5	—	32
Quebec.....	209	10	41	260	245	—	10	5	260
Ontario.....	432	78	132	642	545	3	94	—	642
Manitoba.....	61	48	11	120	100	—	20	—	120
Saskatchewan.....	83	15	27	125	113	—	12	—	125
Alberta.....	136	87	38	261	196	1	64	—	261
British Columbia.....	277	65	78	420	302	—	118	—	420
Yukon.....	2	1	2	5	5	—	—	—	5
TOTAL.....	1,253	323	347	1,923	1,588	5	325	5	1,923

Section 41(1)—Possession.

Section 42(1)—Trafficking.

Section 42(2)—Possession for the purpose of trafficking.

TABLE E.50

CONVICTIONS UNDER THE FOOD AND DRUGS ACT, PART IV, IN 1972

Province	Section of Act			TOTAL	Drugs involved				TOTAL
	41(1)	42(1)	42(2)		L.S.D.	S.T.P.	M.D.A.	L.B.J.	
Newfoundland.....	5	1	3	9	8	—	1	—	9
Prince Edward Island.....	5	—	1	6	6	—	—	—	6
Nova Scotia.....	14	2	2	18	17	—	1	—	18
New Brunswick.....	16	5	3	24	19	—	5	—	24
Quebec.....	198	11	56	265	228	—	28	9	265
Ontario.....	478	56	90	624	403	2	216	3	624
Manitoba.....	45	11	18	74	55	—	19	—	74
Saskatchewan.....	57	14	15	86	62	—	24	—	86
Alberta.....	115	10	38	163	103	—	60	—	163
British Columbia.....	275	48	97	420	243	—	177	—	420
Yukon and Northwest Territories.....	8	5	7	20	17	—	3	—	20
TOTAL.....	1,216	163	330	1,709	1,161	2	534	12	1,709

Section 41(1)—Possession.

Section 42(1)—Trafficking.

Section 42(2)—Possession for the purpose of trafficking.

TABLE E.51

STATEMENT SHOWING AGE AND SEX GROUP BY PROVINCE OF PERSONS CONVICTED UNDER THE FOOD AND DRUGS ACT, PART IV, IN 1970

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		70 and over		Not known		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Newfoundland.....	—	—	5	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—
Prince Edward Island.....	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
Nova Scotia.....	3	—	14	1	6	1	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27	2
New Brunswick.....	4	—	16	1	6	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27	2
Quebec.....	29	1	97	10	48	5	13	1	4	2	1	—	—	—	—	—	—	—	—	—	—	—	192	19
Ontario.....	97	9	228	15	128	3	31	1	5	—	3	—	—	—	1	—	—	—	—	—	3	—	496	28
Manitoba.....	10	1	36	3	21	1	4	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	72	6
Saskatchewan.....	15	3	26	2	24	2	7	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	73	8
Alberta.....	61	5	95	12	55	1	9	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	222	18
British Columbia.....	74	4	131	8	79	4	32	1	4	—	3	—	—	—	—	—	—	—	—	—	—	—	323	17
Yukon.....	—	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—
TOTAL.....	294	23	650	52	370	18	102	4	16	3	7	—	—	—	1	—	—	—	—	—	4	—	1,444	100

TABLE E.52

STATEMENT SHOWING AGE AND SEX GROUPS BY PROVINCE OF PERSONS CONVICTED UNDER THE FOOD AND DRUGS ACT, PART IV, IN 1971

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		70 and over		Not known		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Newfoundland.....	1	—	12	1	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	1
Prince Edward Island.....	—	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—
Nova Scotia.....	9	2	14	1	8	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33	3
New Brunswick.....	7	—	7	1	12	—	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	31	1
Quebec.....	34	5	66	5	88	7	28	1	10	1	1	—	4	—	—	—	—	—	—	—	—	—	232	20
Ontario.....	89	13	228	24	180	9	43	4	12	1	—	—	1	—	—	—	—	—	—	—	—	—	555	51
Manitoba.....	9	2	44	5	34	—	6	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	94	8
Saskatchewan.....	21	—	46	3	30	2	8	—	5	—	—	—	1	—	—	—	—	—	—	—	—	—	111	5
Alberta.....	36	3	71	7	52	3	15	1	2	2	2	—	—	—	—	—	—	—	—	—	—	—	179	16
British Columbia.....	59	1	139	14	113	10	52	1	5	—	2	—	2	—	—	—	—	—	—	—	—	—	373	26
Yukon and North-west Territories.....	—	—	2	—	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—
TOTAL.....	265	26	630	61	524	31	159	8	37	4	5	—	8	—	—	—	—	—	—	—	—	—	6	1
																							1,634	131

TABLE E.53

STATEMENT SHOWING AGE AND SEX GROUPS BY PROVINCE OF PERSONS CONVICTED UNDER THE FOOD AND DRUGS ACT, PART IV, IN 1972

Province	Under 18		18-20		21-24		25-29		30-34		35-39		40-49		50-59		60-69		Not known		TOTAL
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Newfoundland.....	2	—	3	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	9
Prince Edward Island.....	—	—	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
Nova Scotia.....	5	1	3	—	7	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	18
New Brunswick.....	7	—	6	—	6	1	4	—	—	—	—	—	—	—	—	—	—	—	—	—	24
Quebec.....	19	2	98	7	78	5	27	3	4	1	1	—	3	—	1	—	—	—	3	—	252
Ontario.....	77	13	195	22	161	14	65	7	21	2	7	2	3	—	—	—	—	—	13	—	602
Manitoba.....	10	2	26	2	22	—	5	1	2	—	—	—	—	—	—	—	—	—	1	—	71
Saskatchewan.....	10	4	30	3	24	1	5	1	1	1	—	—	—	—	2	—	—	—	1	—	83
Alberta.....	18	1	53	8	49	4	12	1	3	1	—	—	—	—	—	—	—	—	5	—	155
British Columbia.....	48	7	135	21	85	11	49	5	15	1	5	1	1	—	—	—	—	—	10	1	395
Yukon and Northwest Territories.....	2	1	5	3	5	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	19
TOTAL.....	198	31	557	67	442	36	171	18	47	6	13	3	7	—	3	—	—	—	34	1	1,634

TABLE E.54
STATEMENT OF CONVICTIONS INVOLVING LSD IN 1970

Province	Section of Act			TOTAL
	40(1)	41(1)	41(2)	
Newfoundland.....	5	1	—	6
Prince Edward Island.....	1	—	1	2
Nova Scotia.....	21	4	3	28
New Brunswick.....	10	8	13	31
Quebec.....	171	9	38	218
Ontario.....	359	57	92	508
Manitoba.....	46	31	10	87
Saskatchewan.....	57	10	14	81
Alberta.....	105	119	47	271
British Columbia.....	173	115	59	352
Yukon.....	3	1	—	4
TOTAL.....	956	355	277	1,588

Section 40(1)—Possession.

Section 41(1)—Trafficking.

Section 41(2)—Possession for the purpose of trafficking.

TABLE E.55

STATEMENT OF CONVICTIONS INVOLVING LSD IN 1971

Province	Section of Act			TOTAL
	41(1)	42(1)	42(2)	
Newfoundland.....	12	3	3	18
Prince Edward Island.....	—	4	—	4
Nova Scotia.....	24	6	4	34
New Brunswick.....	14	4	8	26
Quebec.....	189	10	46	245
Ontario.....	393	79	116	588
Manitoba.....	55	40	9	104
Saskatchewan.....	75	13	25	113
Alberta.....	122	53	31	206
British Columbia.....	179	57	65	301
Yukon.....	2	1	2	5
TOTAL.....	1,065	270	309	1,644

Section 41(1)—Possession.

Section 42(1)—Trafficking.

Section 42(2)—Possession for the purpose of trafficking.

TABLE E.56
STATEMENT OF CONVICTIONS INVOLVING LSD IN 1972

Province	Section of Act		TOTAL
	41(1)	42(1)	42(2)
Newfoundland.....	4	1	3
Prince Edward Island.....	5	—	1
Nova Scotia.....	13	2	2
New Brunswick.....	12	4	3
Quebec.....	174	8	46
Ontario.....	306	39	58
Manitoba.....	35	7	13
Saskatchewan.....	38	11	13
Alberta.....	79	5	19
British Columbia.....	160	28	55
Yukon and Northwest Territories.....	5	5	7
TOTAL.....	831	110	220

Section 41(1)—Possession.

Section 42(1)—Trafficking.

Section 42(2)—Possession for the purpose of trafficking.

TABLE E.57

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1970
Section 40(1)—Possession

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	64	119	1	14	4	1	—	—	—	—	—	—	—	—	—	203
18-20.....	218	103	4	91	8	3	3	—	—	—	—	—	—	—	—	430
21-24.....	131	39	1	46	8	6	1	1	—	—	—	—	—	—	—	233
25-29.....	42	10	—	17	2	2	4	—	—	—	—	—	—	—	—	77
30-34.....	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
35-39.....	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
TOTAL.....	467	271	6	169	22	12	8	1	—	—	—	—	—	—	—	956

*Probation or Suspended Sentence.

TABLE E.58
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1971
Section 41(1)—Possession

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	59	118	1	11	3	—	—	—	—	—	—	—	—	—	—	192
18-20.....	265	99	—	45	16	5	—	—	—	—	—	—	—	—	—	430
21-24.....	167	31	—	36	10	2	—	1	—	—	—	—	—	—	—	247
25-29.....	104	24	—	23	7	3	1	—	—	—	—	—	—	—	—	162
30-34.....	16	1	—	3	—	1	—	—	—	—	—	—	—	—	—	21
35-39.....	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2
40-49.....	5	—	—	—	1	—	—	—	—	—	—	—	—	—	—	6
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	4	1	—	—	—	—	—	—	—	—	—	—	—	—	—	5
TOTAL.....	621	274	1	119	37	11	1	1	—	—	—	—	—	—	—	1,065

*Probation or Suspended Sentence.

TABLE E.59

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1972

Section 41(1)—Possession

Age group	Fine only	Probation or S/S*	A/D†	C/D‡	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. to 15 yrs.	15 yrs. and over	TOTAL
Under 18.....	41	65	1	4	3	2	1	—	—	—	—	—	—	—	—	—	117
18-20.....	217	60	4	6	32	4	4	—	—	—	—	—	—	—	—	—	327
21-24.....	163	27	4	5	24	8	4	—	—	—	—	—	—	—	—	—	235
25-29.....	68	17	1	1	13	—	—	—	—	—	—	—	—	—	—	—	100
30-34.....	22	1	—	3	3	—	1	—	—	—	—	—	—	—	—	—	30
35-39.....	3	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	6
40-49.....	2	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	4
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	8	1	—	—	2	—	—	—	—	—	—	—	—	—	—	—	11
TOTAL.....	524	172	10	20	79	15	10	—	—	—	—	—	—	—	—	—	830

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.60
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1970
Section 41(1)—Trafficking

Age group	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	1	35	2	12	3	12	—	—	—	—	—	—	—	—	—	65
18-20.....	8	32	—	65	29	31	7	5	—	1	—	—	—	—	—	178
21-24.....	—	8	—	13	13	31	7	10	—	—	—	—	—	—	—	84
25-29.....	—	1	—	2	2	10	6	1	—	—	—	—	—	—	—	20
30-34.....	—	—	—	1	1	—	—	2	—	—	—	—	—	—	—	3
35-39.....	—	—	—	1	1	—	—	—	1	—	—	—	—	—	—	3
40-49.....	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	1
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
TOTAL.....	9	75	2	60	50	119	20	18	1	1	—	—	—	—	—	355

*Probation or Suspended Sentence.

TABLE E.61

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1971
Section 42(1)—Trafficking

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	7	13	1	9	7	4	—	—	—	—	—	—	—	—	—	41
18-20.....	6	20	3	25	23	19	5	1	—	—	—	—	—	—	—	102
21-24.....	3	3	—	25	12	27	1	—	—	—	—	1	—	—	—	72
25-29.....	4	4	—	4	15	12	8	1	1	—	—	—	—	—	—	49
30-34.....	—	—	—	—	—	2	—	1	—	3	—	—	—	—	—	6
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	20	40	4	63	57	64	14	3	1	3	—	1	—	—	—	270

*Probation or Suspended Sentence.

TABLE E.62
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1972
Section 42(1)—Trafficking

Age group	Fine only	Probation or S/S*	A/D†	C/D‡	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. to 15 yrs.	15 yrs. and over	TOTAL
Under 18.....	1	15	—	1	4	6	—	—	—	—	—	—	—	—	—	—	27
18-20.....	9	2	—	—	7	7	6	3	—	—	—	—	—	—	—	—	34
21-24.....	1	—	1	—	7	11	7	—	1	—	—	—	—	—	—	—	28
25-29.....	—	—	—	—	7	3	5	1	—	—	—	—	—	—	1	—	17
30-34.....	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Unknown.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
TOTAL.....	11	17	1	1	27	28	19	4	1	—	—	—	—	—	—	1	110

*Probation or Suspended Sentence.
†Absolute Discharge.
‡Conditional Discharge.

TABLE E.63

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1970

Section 41(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	9	32	1	9	6	7	—	—	—	—	—	—	—	—	—	64
18-20.....	8	16	—	30	24	24	3	3	1	2	—	—	—	—	—	111
21-24.....	3	3	—	16	21	20	6	5	1	—	—	—	—	—	—	75
25-29.....	1	—	—	2	5	8	4	1	—	—	—	—	—	—	—	21
30-34.....	3	—	—	—	—	2	—	—	—	—	—	—	—	—	—	5
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	24	51	1	57	57	61	13	9	2	2	—	—	—	—	—	277

*Probation or Suspended Sentence.

TABLE E.64
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1971
Section 42(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	Indefinite or nite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	4	29	—	4	3	5	—	—	—	—	—	—	—	—	—	45
18-20.....	8	19	—	29	34	31	6	1	—	—	—	—	—	—	—	123
21-24.....	10	2	—	25	20	24	3	3	—	1	—	—	—	—	—	88
25-29.....	4	2	—	5	4	9	2	1	—	3	—	—	—	—	—	30
30-34.....	—	1	—	—	—	8	2	—	—	3	—	—	—	—	—	14
35-39.....	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
40-49.....	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
TOTAL.....	27	53	—	63	61	79	13	6	—	7	—	—	—	—	—	309

*Probation or Suspended Sentence.

TABLE E.65

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING LSD IN 1972
Section 42(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	A/D†	C/D‡	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. to 15 yrs.	15 yrs. and over	TOTAL
Under 18.....	1	15	—	—	6	4	1	—	—	—	—	—	—	—	—	—	27
18-20.....	18	12	—	1	32	27	7	—	—	—	—	—	—	—	—	—	97
21-24.....	6	6	—	—	16	7	22	6	2	—	—	—	—	—	—	—	65
25-29.....	5	—	—	—	4	1	4	3	1	—	—	—	—	—	—	—	18
30-34.....	—	2	—	—	2	4	2	—	—	1	—	—	—	—	—	—	11
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	2
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1
TOTAL.....	31	35	—	1	60	44	37	9	3	1	—	—	—	—	—	—	221

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.66
STATEMENT OF CONVICTIONS INVOLVING MDA IN 1970

Province	Section of Act		TOTAL
	40(1)	41(1) 41(2)	
Newfoundland.....	—	—	—
Prince Edward Island.....	—	—	—
Nova Scotia.....	—	—	—
New Brunswick.....	—	—	—
Quebec.....	3	1	4
Ontario.....	32	5 3	40
Manitoba.....	5	—	5
Saskatchewan.....	—	—	—
Alberta.....	7	2 5	14
British Columbia.....	11	— 2	13
Yukon.....	—	—	—
TOTAL.....	58	7 11	76

Section 40(1)—Possession.
Section 41(1)—Trafficking.
Section 41(2)—Possession for the purpose of trafficking.

TABLE E.67
STATEMENT OF CONVICTIONS INVOLVING MDA IN 1971

Province	Section of Act		TOTAL
	41(1)	42(1)	42(2)
Newfoundland.....	—	—	—
Prince Edward Island.....	—	—	—
Nova Scotia.....	—	—	2
New Brunswick.....	1	3	1
Quebec.....	9	—	2
Ontario.....	77	10	16
Manitoba.....	10	8	2
Saskatchewan.....	8	1	3
Alberta.....	44	12	10
British Columbia.....	102	8	17
Yukon.....	—	—	—
TOTAL.....	251	42	53
TOTAL.....			346

Section 41(1)—Possession.
Section 42(1)—Trafficking.
Section 42(2)—Possession for the purpose of trafficking.

TABLE E.68
STATEMENT OF CONVICTIONS INVOLVING MDA IN 1972

Province	Section of Act		TOTAL
	41(1)	42(1)	42(2)
Newfoundland.....	1	—	—
Prince Edward Island.....	—	—	—
Nova Scotia.....	1	—	—
New Brunswick.....	4	1	—
Quebec.....	21	1	6
Ontario.....	169	16	31
Manitoba.....	10	4	5
Saskatchewan.....	19	3	2
Alberta.....	36	5	19
British Columbia.....	115	20	42
Yukon and Northwest Territories.....	3	—	—
TOTAL.....	379	50	105
			534

Section 41(1)—Possession.

Section 42(1)—Trafficking.

Section 42(2)—Possession for the purpose of trafficking.

TABLE E.69

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1970

Section 40(1)—Possession

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	2	4	—	—	—	—	—	—	—	—	—	—	—	—	—	6
18-20.....	14	6	—	3	1	—	—	—	—	—	—	—	—	—	—	24
21-24.....	13	1	—	7	2	—	—	—	—	—	—	—	—	—	—	23
25-29.....	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
30-34.....	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
35-39.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	33	12	—	10	3	—	—	—	—	—	—	—	—	—	—	58

*Probation or Suspended Sentence.

TABLE E.70
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1971
Section 41(1)—Possession

Age group	Fine only	Probation or S/S* period	Indefinite	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	10	14	—	1	2	—	—	—	—	—	—	—	—	—	—	27
18-20.....	61	28	—	7	5	3	—	—	—	—	—	—	—	—	—	104
21-24.....	44	7	—	6	6	1	—	—	—	—	—	—	—	—	—	64
25-29.....	24	13	—	5	1	2	1	—	—	—	—	—	—	—	—	46
30-34.....	3	—	—	3	—	—	—	—	—	—	—	—	—	—	—	6
35-39.....	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	2
TOTAL.....	143	64	—	23	14	6	1	—	—	—	—	—	—	—	—	251

*Probation or Suspended Sentence.

TABLE E.71
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1972

Section 41(1)—Possession

Age group	Fine only	Probation or S/S*	A/D†	C/D†	Under 6 mos.		1 yr. to 2 yrs.		3 yrs. to 4 yrs.		5 yrs. to 6 yrs.		7 yrs. to 8 yrs.		10 yrs. to 15 yrs.		TOTAL
					6 mos.	1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. to 15 yrs.	15 yrs. and over	
Under 18.....	13	24	—	8	1	—	—	—	—	—	—	—	—	—	—	—	46
18-20.....	93	22	—	6	14	4	1	—	—	—	—	—	—	—	—	—	140
21-24.....	71	12	3	5	15	3	4	—	—	—	—	—	—	—	—	—	113
25-29.....	33	2	—	1	10	2	1	—	—	—	—	—	—	—	—	—	49
30-34.....	8	—	—	—	2	—	1	—	—	—	—	—	—	—	—	—	11
35-39.....	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Unknown.....	11	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	15
TOTAL.....	233	62	3	22	42	10	7	—	—	—	—	—	—	—	—	—	379

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

TABLE E.72
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1970
Section 41(1)—Trafficking

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18-20.....	—	—	—	2	4	—	—	—	—	—	—	—	—	—	—	6
21-24.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25-29.....	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	—	—	—	2	4	—	—	1	—	—	—	—	—	—	—	7

*Probation or Suspended Sentence.

TABLE E.73

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1971

Section 42(1)—Trafficking

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	1 yr. to 1 yr.	2 yrs. to 2 yrs.	3 yrs. to 3 yrs.	4 yrs. to 4 yrs.	5 yrs. to 5 yrs.	6 yrs. to 6 yrs.	7 yrs. to 7 yrs.	8 yrs. to 8 yrs.	9 yrs. to 9 yrs.	10 yrs. to 10 yrs.	over 10 yrs.	TOTAL
Under 18.....	—	—	—	1	—	3	—	—	—	—	—	—	—	—	—	4
18-20.....	1	4	—	1	2	3	1	—	—	—	—	—	—	—	—	12
21-24.....	1	—	—	8	4	4	—	1	—	—	—	—	—	—	—	18
25-29.....	—	—	—	1	1	2	1	1	—	—	—	—	—	—	—	6
30-34.....	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	2
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	2	4	—	11	8	12	2	3	—	—	—	—	—	—	—	42

*Probation or Suspended Sentence.

TABLE E.74
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1972
Section 42(1)—Trafficking

Age group	Fine only	Probation or S/S*	Age															TOTAL									
			A/D†	C/D†	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. to 15 yrs.	15 yrs. and over											
Under 18.....	1	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
18-20.....	1	2	—	—	4	3	2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15
21-24.....	3	4	—	—	6	4	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19
25-29.....	—	—	1	—	1	2	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
30-34.....	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
35-39.....	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
TOTAL.....	6	10	1	—	12	9	8	4	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	51

*Probation or Suspended Sentence.
†Absolute Discharge.
‡Conditional Discharge.

TABLE E.75

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1970
Section 41(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	Indefinite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2
18-20.....	1	1	—	—	1	—	—	—	—	—	—	—	—	—	—	3
21-24.....	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	2
25-29.....	—	—	—	—	—	2	2	—	—	—	—	—	—	—	—	4
30-34.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	1	1	—	—	2	5	2	—	—	—	—	—	—	—	—	11

*Probation or Suspended Sentence.

TABLE E.76
AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1971
Section 42(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	Indefinite or nite period	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 9 yrs.	9 yrs. to 10 yrs.	10 yrs. and over	TOTAL
Under 18.....	—	4	—	3	1	—	—	—	—	—	—	—	—	—	—	8
18-20.....	2	1	—	4	1	2	—	—	—	—	—	—	—	—	—	10
21-24.....	2	2	—	4	6	8	1	—	—	—	—	—	—	—	—	23
25-29.....	1	—	—	1	—	3	2	—	—	1	—	—	—	—	—	8
30-34.....	—	—	—	1	1	2	—	—	—	—	—	—	—	—	—	4
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTAL.....	5	7	—	13	9	15	3	—	—	1	—	—	—	—	—	53

*Probation or Suspended Sentence.

TABLE E.77

AGE GROUP AND SENTENCES AWARDED IN CASES INVOLVING MDA IN 1972

Section 42(2)—Possession for the Purpose of Trafficking

Age group	Fine only	Probation or S/S*	A/D†	C/D‡	Under 6 mos.	6 mos. to 1 yr.	1 yr. to 2 yrs.	2 yrs. to 3 yrs.	3 yrs. to 4 yrs.	4 yrs. to 5 yrs.	5 yrs. to 6 yrs.	6 yrs. to 7 yrs.	7 yrs. to 8 yrs.	8 yrs. to 10 yrs.	10 yrs. to 15 yrs.	15 yrs. and over	TOTAL
Under 18.....	1	4	—	—	—	—	2	—	—	—	—	—	—	—	—	—	7
18-20.....	4	6	—	1	8	8	11	1	—	—	—	—	—	—	—	—	39
21-24.....	4	2	—	—	5	8	10	1	2	2	1	—	—	—	—	—	35
25-29.....	4	1	—	—	1	2	2	1	1	—	—	—	—	—	—	—	12
30-34.....	1	1	—	—	—	2	2	—	—	—	—	—	—	—	—	—	6
35-39.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40-49.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50-59.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unknown.....	2	—	—	—	1	—	—	—	1	—	1	—	—	—	—	—	5
TOTAL.....	16	14	—	1	15	20	27	3	4	2	2	—	—	—	—	—	104

*Probation or Suspended Sentence.

†Absolute Discharge.

‡Conditional Discharge.

Some Legal Considerations

F.1 THE CONSTITUTIONAL FRAMEWORK

THE CRIMINAL LAW BASIS OF FEDERAL LEGISLATION

Federal drug legislation is presently based upon the criminal law power.¹ The protection of health from injurious substances and the prevention of adulteration, both as a threat to health and a species of fraud, have been held to be valid criminal law purposes.² Both the *Narcotic Control Act*³ and the *Food and Drugs Act*⁴ create criminal offences. There is no essential difference between them in this respect. The maximum penalties for offences under the *Food and Drugs Act* are less severe than those under the *Narcotic Control Act*, and there is a greater opportunity to proceed by summary conviction rather than indictment but the effect of conviction under the two statutes is the same. There was a misapprehension in the course of our inquiry that conviction under the *Food and Drugs Act* was somehow not as serious as conviction under the *Narcotic Control Act*. This impression may have resulted from the fact that the *Food and Drugs Act* appears to be more of a regulatory than a criminal law statute. It regulates a whole range of food and drugs by a system of standards, inspection, and, in some cases, licensing. At the same time, however, it prohibits unauthorized distribution and possession of certain substances with penal consequences. The same is essentially true of the *Narcotic Control Act*. Both statutes are cast mainly in the form of prohibitions—no doubt to emphasize their criminal law character—and the licensing regulations made under them indicate the scope and conditions of permitted conduct. In effect, the regulations complete the definition of the conduct that is prohibited.

There is no doubt that federal penal offences vary considerably in their relative seriousness, and the stigma which will attach to conviction in any case will depend on the nature of the offence and the law under which it arises. Apart from its independent power to create criminal offences, the Parliament of Canada has a regulatory jurisdiction in many areas in which it may create penal offences to enforce its legislation. In many cases these penal offences will be viewed as of relatively much less seriousness than the ordinary criminal law offence. In many cases there may not be a requirement of *mens rea* or criminal intent as a condition of liability.

Thus, for example, it was held by the Supreme Court of Canada in *The Queen v. Pierce Fisheries Limited*⁵ that *mens rea* or guilty knowledge was not an essential ingredient of the offence of being in possession of short lobsters contrary to the *Lobster Fishery Regulations* under the federal *Fisheries Act*. It was held that the common law presumption that *mens rea* is an essential ingredient of a criminal offence only applies to "cases that are criminal in the true sense", and that this was not such a case. Ritchie J., speaking for the majority of the court, said:

I do not think that a new crime was added to our criminal law by making regulations which prohibit persons from having undersized lobsters in their possession, nor do I think that the stigma of having been convicted of a criminal offence would attach to a person found to have been in breach of these regulations. The case of *Beaver v. The Queen, supra*, affords an example of provisions of a federal statute other than the *Criminal Code* which were found to have created a truly criminal offence, but in the present case, to paraphrase the language used by the majority of this Court in the *Beaver* case I can discern little similarity between a statute designed, by forbidding the possession of undersized lobsters to protect the lobster industry, and a statute making it a serious crime to possess or deal in narcotics.

This distinction between offences which are truly criminal and those which are not has been drawn for the purpose of determining whether *mens rea* should be a requirement of liability. This is a matter which goes to the protection of the accused rather than the effect of conviction, although the absence of a requirement of *mens rea* may certainly be reflected in the stigma which attaches to conviction. In any event, the offences under the *Narcotic Control Act* which apply to cannabis as well as the opiate narcotics are clearly criminal offences "in the true sense", and knowledge that one is in possession of a prohibited drug is essential for the offence of simple possession. Similarly, the offences of trafficking, possession for the purpose of trafficking, and simple possession under Parts III and IV of the *Food and Drugs Act* with respect to controlled drugs and restricted drugs are "truly criminal" offences. There is no doubt that the general approach of the legislation and law enforcement towards a particular offence, and especially the relative seriousness of the penalties imposed, will, together with public attitudes, determine the degree of stigma resulting from conviction. But if a person who was convicted of simple possession of cannabis were asked if he had been convicted of a criminal offence he would have to answer yes. The same is true of conviction of simple possession of LSD under Part IV of the *Food and Drugs Act*.

OTHER POSSIBLE BASES OF FEDERAL JURISDICTION IN RELATION TO NON-MEDICAL DRUG USE

There is a question as to whether the federal government has any constitutional basis, other than the criminal law power, for a comprehensive regulation of non-medical drug use. The question becomes one of some practical interest in connection with any proposal to replace the criminal

law prohibition of cannabis by a regulatory system that would make it legally available under licence or through a government monopoly of distribution. Two possible alternative bases of jurisdiction have to be considered: the trade and commerce power⁶ and the general power, or "peace, order and good government" clause.⁷

The federal government has had to rely on its criminal law power as the basis of its food and drug legislation because of the limited nature of its power to regulate trade and commerce. The trade and commerce power would at first sight seem to be the logical basis for a licensing system to regulate the distribution and use of drugs which have to be made legally available for medical or non-medical purposes. But this power has been restricted by judicial decision to interprovincial and international trade and commerce.⁸ Transactions which take place wholly within a province fall, as a general rule, under provincial jurisdiction. Exceptionally, the federal government may regulate intraprovincial transactions if such regulation is necessarily incidental to the effective regulation of extraprovincial trade and commerce. The case that would have to be made for a comprehensive federal drug regulation based on the trade and commerce power would be that Parliament cannot effectively regulate the extraprovincial trade in drugs without controlling intraprovincial transactions as well, or that the trade in drugs must be considered as a whole to be interprovincial and international in character. It is highly unlikely that this would be accepted by the courts. The regulation of local transactions at retail is not necessary to the regulation of the trade in its extraprovincial aspects, as the regulation of certain local operations, such as delivery of grain to elevators for intraprovincial consumption, has been held to be necessary to the effective regulation of the extraprovincial grain trade.⁹

The other possible basis for the federal jurisdiction to regulate the use of drugs is the general power. A matter falls within the general power if it does not fall within provincial jurisdiction or within the specific heads of federal jurisdiction. It has also been held that a matter originally under provincial jurisdiction may acquire such national importance as to bring it under the general power. There have been several examples of the first application of the general power, but virtually none of the second outside of a state of national emergency. In the first category are such matters as aeronautics,¹⁰ radio,¹¹ atomic energy¹² and the national capital development.¹³ They are not considered to be matters which at one time were under provincial jurisdiction but subsequently changed in relative importance; they are deemed to have always been matters of national concern. In the second category are the cases holding wartime emergency legislation to be valid on the basis of the general power.¹⁴ Such legislation clearly dealt with matters normally within provincial jurisdiction, such as the fixing of prices and wages. Attempts in peacetime, in some cases in a period of economic depression, to justify federal legislation on the basis of the general power in such fields as labour relations,¹⁵ industrial standards,¹⁶ marketing¹⁷ and

restraint of trade,¹⁸ have all failed. The regulation of these matters within the provinces, in a non-criminal law aspect, was held to fall within provincial jurisdiction with respect to property and civil rights. They were held not to be matters of national importance for purposes of the general power. In deciding the cases the courts applied what has come to be known as the "emergency doctrine" of the general power—that it can be applied to matters normally of provincial jurisdiction only to meet some emergency. Examples suggested have been war (or similar national emergency, such as insurrection) and pestilence. Economic depression has not been considered a sufficient emergency.

In two leading cases the federal Parliament was held to have jurisdiction, in virtue of the general power, to suppress the traffic in liquor, and it was suggested that it would have the same power with respect to the drug traffic, but a closer examination of these cases, and other related decisions, leads to the conclusion that all that was contemplated in effect was a criminal law exercise of the general power. In the first of these cases—*Russell v. The Queen*¹⁹—the Privy Council held a federal liquor prohibition statute to be valid on the basis of the general power but the language clearly indicates that they saw it essentially as a measure of criminal law. Indeed, the criminal law power was sufficient to support the legislation, and it was unnecessary to invoke the general power in other than its criminal law aspect. The essence of the federal statute was the prohibition of conduct with penal consequences. Speaking of laws having a criminal law purpose, the Privy Council said:

Laws of this nature designed for the promotion of public order, safety or morals, and which subject those who contravene them to criminal procedure and punishment, belong to the subject of public wrongs rather than to that of civil rights. They are of a nature which fall within the general authority of Parliament to make laws for the order and good government of Canada, and have direct relation to criminal law, which is one of the enumerated classes of subjects assigned exclusively to the Parliament of Canada.

This was the way in which the relationship between the specific heads of federal jurisdiction and the general power was originally conceived: the specific heads were thought of merely as examples or aspects of the general power. What seems to have happened in the *Russell* case is that counsel who challenged the validity of the federal legislation conceded that if the matter to which it related did not fall under provincial jurisdiction then it could be deemed to fall under the general power of Parliament. Having found that it did not fall under provincial jurisdiction, the Privy Council did not concern itself particularly with the specific head of federal jurisdiction to which it should be related.

In the *Canada Temperance Federation* case,²⁰ some sixty-four years later, the Privy Council reaffirmed the general power as the basis for the *Canada Temperance Act*, and cited the suppression of the drug traffic as a matter for which Parliament could probably invoke the general power, but the whole history of judicial decisions on the subject raises a very serious

doubt as to whether it is the general power in other than a criminal law aspect that can be relied upon. The issue is not whether the drug traffic can be prohibited with penal consequences like the liquor traffic. Obviously it can. The issue is whether there is a more comprehensive basis of federal jurisdiction for legislating in relation to non-medical drug use than the criminal law power—one that would support the full range of legislative options. When we speak of the general power we think of the full scope of legislative power which Parliament considers to be necessary to effect its purposes, such as that which it has been held to possess in time of war or other national emergency. The real issue is whether Parliament has the constitutional basis for the introduction of legislative controls for which the criminal law power cannot be invoked.

Within a few years of the *Russell* case the Privy Council rendered two decisions concerning jurisdiction to regulate the sale of liquor by a system of licensing. In *Hodge v. The Queen*²¹ they held that the provinces had the power to introduce such a system of regulation, and two years later in the unreported *McCarthy Act* decision²² they held that the federal Parliament did not. The implications of this second decision are that Parliament does not have a true general power with respect to liquor legislation. The *McCarthy Act* provided for a licensing system to operate in municipalities according to local option. Subsequent judicial references to the *McCarthy Act* decision have indicated that the Privy Council's reason for judgment was that the federal act was considered to be an attempt to regulate trade and commerce within the provinces.

The *McCarthy Act* clearly showed a concern with restrictions on availability in the form of limitations on the number of licenses, and on days, hours and places of sale and consumption. It also contained prohibitions against sale to minors and against adulteration. And, of course, it prohibited all unauthorized sale. It is difficult to see why it could not have been supported on the same basis as that on which federal legislation to control the quality and availability of harmful substances rests today. There would seem to be a contradiction between upholding federal liquor prohibition in the *Russell* case, on the ground of a general power to suppress the distribution of an injurious substance, and denying a similar power in the *McCarthy Act* decision to control the availability of this substance by a system of licensing. The *McCarthy Act* seems to have been regarded, not as an alternative system of controlling an injurious substance, but as an ordinary regulation of trade and commerce within the provinces. It may be that the Privy Council had regarded the "evil" of the liquor traffic in the *Russell* case, not so much as a matter of danger to health as a matter of morality. In any event, the impression is that the Privy Council's perception of the liquor problem had changed radically in the intervening years. There are two explanations which suggest themselves: first, they had previously had to consider a provincial liquor licensing scheme in the *Hodge* case, and having affirmed this, they could not see how they could reasonably recognize a comparable federal

jurisdiction; and secondly, because of the somewhat vague reference to the general power in the *Russell* case (which, as we have suggested, was not a true general power at all), they had not really focussed on the full implications of the criminal law power as a general basis for federal control of dangerous substances, including control by licensing. The fact is that the federal criminal law power was not properly considered in the liquor cases, either as a basis for federal regulatory legislation or as an obstacle to provincial liquor prohibition. (Among the early decisions was one affirming provincial jurisdiction to prohibit the liquor traffic as a "local evil" in the province.²³) The issues were argued more from a trade and commerce perspective. The head of federal jurisdiction around which the discussion mainly turned was regulation of trade and commerce under section 91(2) of the *British North America Act*.

The decision in the *McCarthy Act* case raises a question as to whether Parliament could validly introduce a licensing system to allow a controlled availability for non-medical purposes of a substance that has hitherto been completely prohibited. It is difficult to see why it should be distinguishable from the licensing of drugs for medical purposes. The issue must be whether the legislative purpose is control of a harmful substance for the protection of health or whether it is simply a regulation of trade and commerce for revenue and other non-criminal purposes. The issue is that which was presented in the *Margarine case*²⁴ where a federal prohibition of the manufacture and sale of margarine in the provinces was held to be invalid as a colourable use of the criminal law power. The purpose was not to protect the public health from a dangerous substance, since margarine was admitted to be a harmless substance, but to protect the dairy farmers from the competition of substitutes for butter. It was an attempt to regulate trade and commerce within the provinces—a matter which, as we have said, falls within exclusive provincial legislative jurisdiction, except to the extent that it can be shown in a particular case to be necessary to the effective exercise of federal jurisdiction with respect to extraprovincial trade and commerce. In a change from complete prohibition to legal availability through license or government monopoly the issue of validity—insofar as the criminal law power is concerned—would turn on whether the substance to be made available would continue to be regarded as a harmful substance for which controls are necessary. If it were, then there should be no reason, notwithstanding the *McCarthy Act* decision, why a federal system of distribution by licensing should not be valid. A federal monopoly of production and distribution might tend to obscure the legislative purposes somewhat, as suggesting an attempt to secure a trade monopoly for revenue purposes, but a good case could be made for government monopoly as an added safeguard in the control of quality and availability of a harmful substance. However, the *McCarthy Act* decision and the issue in the *Margarine* case were the reasons we raised a question in the *Interim Report* as to the validity of a federal system of distribution of cannabis, involving government monopoly, particularly if cannabis were to be made available on the basis of a judgment as to relative absence of potential for harm.

It is because of this doubt, however, that it is necessary to return to the possibility of the general power (as distinct from the criminal law power) as a possible basis for federal legislation in relation to non-medical drug use. In several decisions rejecting the general power as a basis for federal legislation, the Privy Council attempted to rationalize its decision in the *Russell* case by the suggestion that the consumption of liquor must be presumed to have been regarded as a national emergency. Later, in the *Canada Temperance Federation* case, the Privy Council abandoned this view of the matter, holding that the test of whether a matter falls within the general power is not the existence of an emergency, although that may be the occasion for the legislation, but whether "it is such that it goes beyond local or provincial concern or interests and must from its inherent nature be the concern of the Dominion as a whole" But the examples given were aeronautics and radio, which, as suggested above, must be considered to have always been matters of national concern. Thus, the *Canada Temperance Federation* case, in which much hope has been placed for a broader application of the general power, does not really throw light on the circumstances in which a matter normally under provincial jurisdiction might be considered to have changed in character sufficiently to come within the general power. It does suggest, however, that the drug traffic may be regarded as such a matter quite apart from the notion of emergency.

The case that would have to be made in favour of the general power is that non-medical drug use has changed in character and become a matter of overriding national concern. This may appear to be so obvious to the layman as to make him wonder how a court could fail to agree. There are, however, many matters falling to some extent under provincial jurisdiction which could be regarded as matters of national concern. If all matters of widespread concern to Canadians are to be deemed to fall under the plenary legislative jurisdiction of Parliament then we should soon have little left in the way of provincial jurisdiction. If non-medical drug use has been considered in the past to be a provincial matter, apart from the criminal law power, then we should have to ask when it changed in scope so as to become a matter of overriding national concern and when, if ever, it would be likely to cease to have this character. A declaration in the present circumstances that it has this character might be tantamount to affirming that it has always had it. A persuasive case could no doubt be made that non-medical drug use has so changed in character as to come under the general power, and the courts could be expected to pay great respect to a solemn declaration by Parliament that it had now become a matter, not merely of national concern, but of national emergency. But the appropriateness of such a declaration would depend on the legislative purpose to be served and the nature of the particular non-medical drug use to which it was directed. It is difficult to see how such a declaration would be appropriate to support federal legislation to make cannabis legally available under license or through government monopoly. The misuse of alcohol remains the most serious non-medical drug use problem in Canada; yet it is inconceivable that Parliament would consider declar-

ing it a national emergency in order to assert a general jurisdiction beyond that which it can assert on the basis of the criminal law power.

JURISDICTION WITH RESPECT TO HEALTH

This view of the possibility of the general power as a basis for legislation of a non-criminal law nature in relation to non-medical drug use is reinforced by the view which has generally been taken of the distribution of jurisdiction with respect to public health. There has been some expression of judicial opinion that the general or residuary jurisdiction with respect to health rests with Parliament, on the basis of the general power;²⁵ but the weight of opinion,²⁶ and the assumption on which governments have acted,²⁷ is that it rests with the provinces. It is recognized, however, that Parliament may invoke the general power to cope with real emergencies.

Two important functions in respect of health are treatment and quarantine. In each case the general jurisdiction would appear to be provincial. The primary jurisdiction with respect to medical treatment lies with the provinces by virtue of section 92(7) of the *British North America Act* which confers upon provincial legislatures exclusive jurisdiction with respect to "The Establishment, Maintenance, and Management of Hospitals, Asylums, Charities, and Eleemosynary Institutions in and for the Province, other than Marine Hospitals". The federal jurisdiction with respect to the establishment of treatment facilities is a restricted one. The only express power is section 91(11), which gives Parliament jurisdiction with respect to "Quarantine and the Establishment and Maintenance of Marine Hospitals". In addition, Parliament may establish and manage treatment facilities in other areas of federal concern, such as the armed forces, the Indian population on reservations, the prison population in federal institutions, and immigration.

It is necessary to distinguish between the regulatory jurisdiction with respect to hospitals and other treatment facilities which, as a general rule, lies with the provinces, and the capacity of the federal government, through the exercise of its spending power, to provide financial assistance for the establishment of such facilities in the provinces. The use of the federal spending power in areas beyond federal legislative jurisdiction is a controversial issue, as a matter of policy, but it has not yet been ruled to be constitutionally invalid. By this device the federal government may impose conditions upon grants of financial assistance which will assure the implementation of certain policies and standards.

Federal jurisdiction with respect to "Quarantine and the Establishment and Maintenance of Marine Hospitals" in virtue of section 91(11) of the *BNA Act* has not been the subject of much judicial commentary. Most of this commentary has been unnecessary to the decision of the cases, but it has tended to affirm a general provincial jurisdiction on the subject of quarantine.²⁸ The most reasonable interpretation to apply to the word "quarantine" in section 92(11) is that it refers to port of entry or ship's quarantine.²⁹ This results from its juxtaposition with the subject of marine hospitals and the fact

that it falls in the sequence of specific heads of jurisdiction dealing with what might collectively be described as maritime matters: "9. Beacons, Buoys, Lighthouses, and Sable Island; 10. Navigation and Shipping; 11. Quarantine and the Establishment and Maintenance of Marine Hospitals; 12. Sea Coast and Inland Fisheries; 13. Ferries between a Province and any British or Foreign Country or between two Provinces . . ." It would be highly incongruous to insert a general power of quarantine in this grouping of subject matters. Moreover, if, as the weight of opinion seems to indicate, the general jurisdiction with respect to public health lies with the provinces, it would be a serious qualification of that jurisdiction to deny it a general power of quarantine. We seem to have a case, similar to that of the federal power to regulate trade and commerce, where it is necessary to read a qualification into an apparently unqualified term in order to reconcile it with the legitimate requirements of provincial jurisdiction.

Whether the federal government has a true general power in relation to non-medical drug use, and the scope of the federal power with respect to matters of health, are particularly relevant in view of the non-penal alternatives suggested by article 22 of the *Convention on Psychotropic Substances*, 1971, which provides:

. . . when abusers of psychotropic substances have committed such offences, the Parties may provide, either as an alternative to conviction or punishment or in addition to punishment, that such abusers undergo measures of treatment, education, after-care, rehabilitation and social reintegration in conformity with paragraph 1 of article 20.

It is clearly established that the provinces have jurisdiction to provide for civil commitment or compulsory treatment. There is legislation for the involuntary confinement of mentally disordered persons in all of the provinces. The statement of the grounds for such confinement varies but generally speaking it is that the patient suffers mental disorder in such a degree that hospitalization is required "for his own protection or welfare or that of others" or "in the interest of his own safety or the safety of others". There is also legislative provision in some provinces for the compulsory treatment of drug dependent persons, including alcoholics, either under the mental health legislation or some special statute. The constitutional basis for compulsory treatment legislation in the provinces would appear to be section 92(7) of the *BNA Act* respecting the establishment of hospitals and asylums, section 92(13) respecting property and civil rights, including questions of incapacity and the protection of incapables, and section 92(16) which covers the residual provincial jurisdiction with respect to matters of health.³⁰

In the absence of a true general power with respect to non-medical drug use or a general jurisdiction with respect to matters of health, federal power to provide for compulsory treatment must be grounded on the criminal law power. On this issue the Special Committee of the Senate on the Traffic in Narcotic Drugs, reporting in 1955, expressed itself as follows:

The Committee points out that it is not within the constitutional authority of the federal government to assume responsibility for treatment of drug ad-

dicts nor to enact the kind of legislation necessary in that connection. This legislation would need to include the compulsory treatment of addiction, the legal supervision and control over the individual during treatment and the right of control of an individual following treatment to prevent his return to the use of drugs, former associations or habits. These are considered to be matters beyond the competence of the federal government.³¹

In spite of this, Parliament provided for the compulsory treatment of drug offenders in Part II of the *Narcotic Control Act* in 1961. However, this part of the Act has never been put into force by proclamation. Whether this is because of doubts about the constitutional validity of these provisions or the failure to develop suitable treatment methods and facilities or later reservations by the government as to the advisability of compulsory treatment in principle, or some combination of these, is not clear. In any event, the provisions of Part II of the Act do provide a convenient framework for consideration of the jurisdiction of the federal Parliament with respect to compulsory treatment based on the criminal law power.

Part II provides for two kinds of special disposition of persons convicted of offences under the Act: preventive detention for an indeterminate period in a penitentiary and sentence to custody for treatment for an indeterminate period in an institution operated under the federal penitentiary system.

Preventive detention would apply in the case of a conviction for trafficking, possession for the purpose of trafficking or illegal importing or exporting. Where a person was convicted of one of these offences, and had previously been convicted at least once of such an offence, or had been previously sentenced to preventive detention under Part II, the court would be obliged to sentence such person to preventive detention.

The *Criminal Code* provisions for preventive detention of habitual criminals and dangerous sexual offenders, although challenged on the ground that they inflict punishment for a status or condition and that they impose "cruel and unusual punishment" in violation of the *Canadian Bill of Rights*, have been held to be constitutionally valid.³² This makes it probable, although not inevitable, that the provision for preventive detention in Part II of the *Narcotic Control Act* would also be held to be valid. However, since the provision makes the sentence mandatory and leaves the court without the discretion which it has under the *Criminal Code* provisions, a stronger case could be made against its validity on the ground of cruel and unusual punishment. The sentence could be called for in some very questionable circumstances, for example, a second offence of marginal trafficking in cannabis.

The sentence to custody for treatment in Part II of the *Narcotic Control Act* is clearly regarded by the legislation as something different from preventive detention, although the effect may be similar, so presumably its constitutional validity is not automatically disposed of by the arguments applicable to the latter. It has a voluntary aspect, in that it may be ordered pursuant to an application by the accused or his counsel, but it may also be ordered upon application by counsel for the Crown. For this reason we shall refer to it as

compulsory treatment. It applies not only in the case of a conviction for any of the offences for which preventive detention is to be ordered, but also in the case of conviction for simple possession under the *Narcotic Control Act*. The condition is not a previous conviction of any of these offences, as in the case of preventive detention, but the fact of being a "narcotic addict". This expression is defined in the Act to mean a person "who through the use of narcotics . . . has developed a desire or need to continue to take a narcotic, or . . . has developed a psychological or physical dependence upon the effect of a narcotic". Thus a person who was convicted of simple possession of cannabis for the first time could, theoretically at least, be sentenced to custody for treatment for an indeterminate period if the court found that he had developed a desire to continue to take cannabis. Moreover, under the provisions as presently worded, a person could be sentenced to custody for treatment for addiction to a drug different from the one involved in the offence of which he was convicted. Thus there might be little or no connection between the offence and the condition justifying the sentence.

In other respects the legislation has obviously been framed to suggest as close a connection as possible with the criminal law process. The order of commitment for compulsory treatment is called a "sentence" to suggest the criminal law disposition of a case. It is to be "in lieu of any other sentence that might be imposed for the offence of which he was convicted". The legislation makes criminal conviction a prior condition, and does not attempt to provide for compulsory treatment as an alternative to further prosecution, which would make it independent of guilt or innocence. The court may order that the accused be examined for addiction while a charge is pending, but a sentence to custody for treatment is to be imposed only if he is convicted. A person under such sentence would come under the jurisdiction of the federal penitentiary and parole systems. He would be deemed to be an "inmate" within the meaning of the *Parole Act* and subject to release and supervision in accordance with that act.

While these provisions strongly suggest that Parliament considered its jurisdiction with respect to compulsory treatment (to the extent that it existed at all) to be limited to criminal cases, the legislation contemplates federal-provincial agreements whereby the federal penal authorities could acquire custody of narcotic addicts who had not been charged with an offence but who had been committed for compulsory treatment under provincial legislation. Under such an agreement a province would make use of the federal penitentiary and parole systems for the confinement, release and supervision of persons so committed. Part II provides (as does complementary provincial legislation³³) that persons committed under the provincial legislation would be deemed, for purposes of the federal penitentiary and parole systems, to have been sentenced to custody for treatment under Part II.

If compulsory treatment is to fall within the criminal law power it must be seen either as a valid disposition of a criminal law case or as an aspect of Parliament's jurisdiction to legislate for the prevention of crime. To be valid

as a criminal law disposition it would seem that a disposition must be reasonably related to the issue of criminal responsibility. There is no doubt that Parliament may validly confer on the courts a wide range of discretion as to disposition. This includes suspended sentence and probation, and it could also include absolute and conditional discharge, which would even preclude conviction. It would seem that the essential thing is that there must be a prohibition of conduct with provisions for penalty, and a disposition of the case that is reasonably related to a finding as to criminal responsibility. This is the case with confinement under the provisions of the *Criminal Code* of a person who is found to be unfit to stand trial³⁴ or is acquitted on account of insanity.³⁵ The condition for which he is confined is directly related to the issue of criminal responsibility.³⁶

As it presently stands in Part II, the sentence to custody for treatment would not appear to be so related. The sentence might be imposed for addiction to a drug other than that involved in the offence for which the accused was convicted. Certainly there would be a bona fide criminal law offence, charge and conviction, and some disposition would be called for. But the provision concerning preventive detention shows that confinement for an indeterminate period is not contemplated as an appropriate disposition for a case of first offence under the *Narcotic Control Act*, and in any event not for the offence of simple possession. Thus the sentence to custody for treatment must be in consideration of the condition of addiction rather than the offence of which the accused has been convicted. When an offence that is punishable by imprisonment for a maximum of seven years is the occasion of a "sentence" for an indeterminate period, based on the fact of addiction, then it is doubtful if such sentence can be said to be reasonably related to the issue of criminal responsibility.

There is no doubt that federal inmates may be validly exposed to medical treatment in the course of their confinement, but the coercive aspect of compulsory treatment is the confinement; it is that which is intended to have the compelling influence, and to force the inmate to accept the treatment that is available, if there is any. Involuntary confinement, actual or threatened, is of the essence of compulsory treatment. You cannot have compulsory treatment without it, and it cannot, therefore, be considered to have been imposed to serve some purpose of criminal law disposition, such as deterrence, isolation or rehabilitation. In the case of imprisonment, it is rehabilitation of the offender qua criminal that is sought, not the cure of a medical condition. At the end of his term the offender must be released, whether he is actually rehabilitated or not. Confinement for an indeterminate period for the treatment of addiction implies that the addict will not be released until he is deemed to be cured. His criminal propensities are neither here nor there; it is his medical condition that is in issue.

Now it may be said that the two are closely related; that addiction will compel the addict to engage in the crime of unauthorized possession of narcotics and in the crime of theft and trafficking to support his habit. From

this it may be argued that compulsory treatment is a measure for the prevention of crime. Certainly, the federal criminal law power includes a preventive as well as a remedial jurisdiction.³⁷ Can compulsory treatment be regarded as a valid exercise of the preventive aspect of the criminal law power?

Clearly, there must be some reasonable limits to the scope of this jurisdiction; otherwise, Parliament could invoke the criminal law power to legislate in relation to a great variety of social conditions which have some bearing on crime. The prevention, it is submitted, must be directed to a more or less specific danger of criminal acts. This is the case with preventive detention of habitual criminals and dangerous sexual offenders, a bond to keep the peace,³⁸ and orders not to commit a specific offence in the future.³⁹ It is also the case with juvenile delinquency legislation which, while admittedly a very broad exercise of the preventive criminal law jurisdiction of Parliament,⁴⁰ does turn on the notion of an offence and responsibility for specific violations of law.

In the case of addiction we would be inferring the probability of future criminal acts, not from a history of criminality as in the preventive detention cases, or a threat of criminal acts, as in the bond to keep the peace, but from the compulsive nature of the medical condition. By making it impossible for the addict to obtain the drug legally we compel him to resort to criminal acts, and then we say that his addiction is the cause of his crime. The prohibitions against trafficking and illegal possession are not for some economic purpose, such as the regulation of trade and commerce, but precisely to prevent the harm caused by the non-medical use of opiate narcotics, including the harm of addiction. This is the criminal law means of attempting to prevent this harm. The addiction itself is not the crime. It is submitted that the compulsory medical treatment of addiction must be regarded as a non-criminal law means of dealing with this harm.

Thus while compulsory treatment may have the consequential effect of preventing or reducing crime it is directed to the elimination of a medical condition rather than the deterrence of crime. The cure of addiction does not assure that a person will not engage in trafficking or casual use. Neither of these depend on addiction. The confinement does have the effect of preventing crime, but as we have suggested above, the confinement must be seen as the means of compelling acceptance of treatment rather than prevention of crime. Otherwise, it is indistinguishable from preventive detention and should be justified as such, on a clear showing of prior and present criminality, and serious danger to the public.

The general conclusion that we draw from this analysis is that it is doubtful if the compulsory treatment of addiction is sufficiently related to specific issues of criminal responsibility, either preventively or remedially, to be capable of being grounded jurisdictionally on the criminal law power. If there is a federal jurisdiction to provide for compulsory treatment of addiction it ought logically to exist as a general one, independent of the criminal law power, or not at all. If there is a federal power to provide for compulsory

treatment of addiction in order to prevent crime then there ought logically to be a federal power to provide for the compulsory treatment of psychopathic conditions which may lead to crime. It is perhaps significant that Parliament has not attempted to disguise the preventive detention of the habitual criminal or the dangerous sexual offender as compulsory treatment, although their condition may be one which calls for treatment.

We do not deny that there is a persuasive argument to be made for compulsory treatment as a measure for the prevention of crime; all we say is that its implications carry us beyond the criminal law power. It is on a par with other legislative initiatives which may remove conditions, personal or social, which are conducive to crime. Nor do we deny that Parliament may validly provide medical treatment for the criminal offender, to which he may be more or less compulsorily exposed by virtue of his confinement. We merely say that such treatment is not really related to the issue of criminal responsibility so as to form a true part of the disposition of the case. The possible exception is where the addiction can be shown to be directly related to the crime of which he is convicted (as in the case of the simple possession of a drug to which he is addicted). Then the case may be said to be analogous to one in which the accused is acquitted on the ground of insanity. If that is to be the case then we should say what we mean: we should make a finding of addiction the alternative to a finding of criminal responsibility. It should be noted that the Supreme Court of the United States has held that it is unconstitutional to make addiction a crime on the ground that it is cruel and unusual punishment in violation of the Eighth and Fourteenth Amendments of the American Constitution.⁴¹ American civil commitment statutes sometimes expressly provide that civil commitment which is ordered while a charge is pending is not a criminal conviction. On a similar view of the matter the "sentence" to custody for treatment in Part II would have to be considered to be a non-punitive commitment for compulsory treatment in lieu of the punishment which might have been imposed in respect of the offence for which the addict was convicted. The more we attempt to relate compulsory treatment to the criminal law power the more we are obliged to regard it as what many of its critics contend it is—imprisonment under another name.*

The provision in Part II of the *Narcotic Control Act* and provincial legislation declaring a non-criminal addict committed for treatment under provincial law to be deemed to be under sentence to custody for treatment, and therefore an inmate within the meaning of the *Parole Act*, would appear to be of doubtful validity. A province may validly provide for compulsory treatment of narcotic addicts, and as a general rule may validly use federal administrative agencies and institutions for the implementation of its legislation, but it is doubtful if either the federal Parliament or the provincial legislatures can validly impose upon a narcotic addict who has not been convicted of a narcotic offence the status of an inmate for purposes of the

* There is further discussion of federal jurisdiction with respect to compulsory treatment in Appendix J *Probation for Heroin Dependents in Canada*.

Parole Act. There would appear to be a significant difference between the delegation that is contemplated here and that which has been permitted to facilitate the application of uniform rules and the avoidance of administrative duplication in the fields of natural products marketing and highway transportation.⁴² Here there is a qualitative difference in the nature of the legislative and administrative impact on each side of the jurisdictional division. There is an attempt to give a criminal character to a civil status without any bona fide criminal law basis for it. The enabling provision may be necessary to authorize the federal authorities to deal with the addict, but it effects a change of status which neither legislature can validly impose.

Thus there is considerable doubt about the scope of federal jurisdiction to provide for compulsory measures of treatment, education, after-care, rehabilitation and social reintegration as an alternative to conviction or punishment or in addition thereto. This policy option, suggested by the *Convention on Psychotropic Substances*, 1971, would appear, on constitutional and practical grounds to be open only to the provinces because of their jurisdiction and practical involvement with respect to such matters. Such a policy development involves a shift in constitutional emphasis from federal to provincial jurisdiction. We do not deny that there is considerable scope for a variety of dispositions of an essentially non-punitive nature in criminal cases, but as we have attempted to show in the discussion of compulsory treatment, there is considerable difficulty, and probably serious disadvantages, in attempting to relate a public health approach to issues of criminal responsibility. This the federal government is obliged to do if it attempts to develop a public health model for dealing with the non-medical user of drugs without a clear basis in the general power for such an approach.

In considering whether Parliament should have legislative jurisdiction to provide for compulsory measures of treatment or indoctrination in lieu of criminal law conviction, the courts might well be influenced by the fact that there is an international agreement contemplating such a policy. But the law at present is that an international agreement does not add anything to the legislative jurisdiction which Parliament otherwise has under the *BNA Act*.⁴³ The federal government has the executive power to make international agreements on behalf of Canada, but it may not in a particular case have the full legislative power required to implement an agreement by suitable domestic legislation. Such power may lie wholly or partly with the provincial legislatures. The federal government does not increase its legislative power by entering into an international agreement. That power continues to be determined by the normal distribution of legislative jurisdiction under the Canadian constitution. Thus, where the implementation of a proposed international agreement will require provincial legislative action, the agreement ought logically to be preceded by federal-provincial consultation. Canada fulfils its obligations under an international agreement if it implements the agreement by appropriate legislative and administrative action, whether it be federal or provincial.

PROVINCIAL POWER TO CREATE PENAL OFFENCES

We must now consider whether there is a provincial jurisdiction to make conduct related to non-medical drug use a punishable offence. For example, if the federal Parliament were to repeal its prohibition of the simple possession of a particular drug, could the provinces validly enact such a prohibition?

The provincial power, in virtue of section 92(15) of the *BNA Act*, to impose penalties (including imprisonment) for the violation of provincial laws can only be invoked if the province has the jurisdiction under some other head in section 92 to legislate in relation to a particular subject matter. The provincial penal jurisdiction is an ancillary power that is used to give effect to legislation that is valid under some other head of provincial jurisdiction. The provinces do not possess a primary and independent power, such as the federal criminal law power, to prohibit conduct with penal consequences. Such prohibition must be related to some other head of jurisdiction in section 92.

The federal criminal law power permits Parliament to select any conduct for criminal law prohibition, whether or not Parliament could otherwise exercise a regulatory jurisdiction with respect to such conduct. For example, Parliament can prohibit certain conduct in the field of highway traffic, such as dangerous and impaired driving, although it does not have the power to regulate highway traffic. There is one limitation on the exercise of the federal criminal law power: it must not be a mere pretense or "colourable" use to usurp a provincial jurisdiction. It must be used for a true criminal law purpose and not for a legislative purpose that lies outside federal jurisdiction. An example of a colourable use of the criminal law power was the federal attempt to prohibit the manufacture and sale of margarine in the provinces, referred to above. The courts have not attempted to draw an exhaustive list of valid criminal law concerns. They have recognized that the criminal law is an expanding field, and that Parliament must be able to create new crimes. It was said in the *Margarine* case that public peace, order, security, health and morality were "the ordinary though not exclusive ends" served by the criminal law.

There may be both federal and provincial penal provisions in a particular field of activity. Where valid federal and provincial legislative provisions come into conflict the federal legislation prevails. The provincial legislation is rendered inoperative to the extent of such conflict.⁴⁴

To what extent can the provinces, in the absence of conflicting federal legislation, validly attach penal consequences to conduct in the field of non-medical drug use? There are precedents in the field of liquor control which appear to afford a basis for such jurisdiction, but they require careful examination. The provinces clearly have the jurisdiction to regulate the distribution and possession of liquor, and they can make it an offence to distribute or possess liquor except as permitted by the regulatory legislation which they enact. Such a legislative approach is similar to that reflected by the *Narcotic*

Control Act and the *Food and Drugs Act*. Liquor is made available upon certain conditions and in a certain manner, and any other dealing in it is prohibited. But the provinces may go further; the courts have held that they may prohibit the distribution of liquor altogether.⁴⁵ It is this jurisdiction that is most relevant to the consideration of whether the provinces could prohibit the conduct involved in other non-medical drug use.

The constitutional basis of provincial liquor prohibition, as articulated in the cases, is somewhat ambiguous. The provincial suppression of the liquor traffic has been justified as the abatement or prevention of a "local evil", resting on provincial jurisdiction with respect to matters of a merely local or private nature in the province under section 92(16) of the *BNA Act*. It is not clear what was contemplated as the "evil" in the distribution and consumption of liquor but the language used in the cases is strongly suggestive of morality.

If provincial liquor prohibition is to be considered as a penal suppression of conduct on the ground of public morality then it must, in the light of later decisions, be considered to be a constitutional anomaly, as we suggested in the *Interim Report*. The Supreme Court of Canada has clearly rejected the notion of "local evil" as a basis for provincial legislation of a criminal law character,⁴⁶ and other decisions have made it plain that the provinces do not have a jurisdiction to create penal offences for the enforcement of morality.⁴⁷

It has been suggested, however, that the provinces can validly prohibit the conduct involved in non-medical drug use as an aspect of provincial jurisdiction with respect to health, and provincial liquor prohibition could be reconciled with this view of the matter. The few cases on the point⁴⁸ are conflicting and reflect the doubt on the issue which we expressed in the *Interim Report*. There must obviously be a provincial jurisdiction to prohibit certain conduct with penal consequences in order to protect public health. Otherwise there can be no effective provincial regulatory jurisdiction with respect to health. The fields of sanitation and infectious disease are typical examples where there must be this power. In the intention behind the criminal law suppression of conduct in relation to non-medical drug use there is, however, a blend of legislative purposes. There is undeniably a bona fide health concern, but there is also a public morality concern. When non-medical drug use is spoken of as an "evil" there is concern not only for the effect on the health of individuals but also concern for the effect on the general tone and capacity of the society—for harm that is not strictly a matter of health. This is a concern for public morals—for the effect of non-medical drug use on character. Are the courts not obliged to assign this dual purpose to provincial attempts to prohibit such conduct, however they may be couched in the form of health legislation? This is the basis for doubt as to provincial jurisdiction to make conduct related to non-medical drug use a punishable offence. The problem is to determine the dominant legislative purpose which gives the legislation its true nature and character.

We have now come to the conclusion that such a jurisdiction can be justified as a protection of health, and as a practical matter can hardly be denied in view of the precedents in favour of provincial liquor prohibition. These include the right to make public drunkenness an offence.⁴⁹ Liquor prohibition must necessarily involve the right to prohibit any and all conduct involved in the distribution and use of liquor, and it is impossible to distinguish between provincial control of liquor and provincial control of other drugs as legislative concerns. They are both concerned with the effect of consumption on the individual and the community generally. Unless the courts are to say that a mistake was made in the liquor prohibition cases there seems to be no way of making a distinction between the two. The "local evil" spoken of in the liquor cases may be thought of as a matter of public morality but it may equally be thought of as a matter of injury to health. We have come to the conclusion that if provincial legislation is so framed as to clearly indicate a concern with the effect of non-medical drug use on the health of the individual it would have a valid provincial aspect notwithstanding that it might incidentally serve other purposes such as the prevention of social harm or the deleterious effects of drug use upon society generally.⁵⁰

JURISDICTION WITH RESPECT TO EDUCATION

Education falls within exclusive provincial jurisdiction under section 93 of the *BNA Act*. At the same time, a distinction must be made between education in the organized sense, involving formal instruction in educational institutions, and education in the broadest sense, including public education through a variety of media and facilities in which the federal government clearly has a role to play.

To the extent that drug education is to be furnished in the school system, it must be deemed to come within provincial jurisdiction. But there is nothing to prevent the federal government from contributing to drug education in the larger sense, outside the formal educational system, by a variety of informational programs making use of all the media of communication. It may also, of course, take a lead in the development of the necessary informational basis for provincial drug education programs and may indeed collaborate in the development of the educational materials for use in such programs.

The distinction drawn in the *Interim Report* between information and education was directed more to the nature of materials than to jurisdictional issues. The distinction was meant to emphasize that the processes and considerations which go into the development of sound information by research and evaluation may differ from those which go into the development of educational materials based on such information. The jurisdictional issue turns rather on the distinction between the organized educational system and activity of a general educational value outside that system. It would be utterly impracticable if every communication which might be deemed to be of an educational value were held to be a matter of exclusive provincial jurisdiction. At the same time there is obviously a domain in which the formal educational

system may be extended by the use of audio-visual techniques. Such development raises a clear issue of provincial jurisdiction but it does not preclude federal activity of general educational value by similar means of communication.*

F.2 WHETHER, IN PRINCIPLE, THE CRIMINAL LAW SHOULD BE USED IN THE FIELD OF NON-MEDICAL DRUG USE

Some people take the position that non-medical drug use is an entirely personal and private matter, not unlike many other things that one does with one's body in the satisfaction of various appetites and the pursuit of various pleasures, and if any harm is being done it is harm which one is doing to oneself alone. They argue that the law should be concerned only with the damage or injury which an individual directly causes to another as a result of drug use. The classic exposition of this point of view is to be found in John Stuart Mill's celebrated *Essay on Liberty*, in which he states his central proposition as follows:

The object of this Essay is to assert one very simple principle, as entitled to govern absolutely the dealings of society with the individual in the way of compulsion and control, whether the means used be physical force in the form of legal penalties, or the moral coercion of public opinion. That principle is, that the sole end for which mankind are warranted, individually or collectively, in interfering with the liberty of action of any of their number, is self-protection. That the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant. He cannot rightfully be compelled to do or forbear because it will be better for him to do so, because it will make him happier, because, in the opinions of others, to do so would be wise, or even right. These are good reasons for remonstrating with him, or reasoning with him, or persuading him, or entreating him, but not for compelling him, or visiting him with any evil, in case he do otherwise. To justify that, the conduct from which it is desired to deter him must be calculated to produce evil to someone else. The only part of the conduct of any one, for which he is amenable to society, is that which concerns others. In the part which merely concerns himself, his independence is, of right, absolute. Over himself, over his body and mind, the individual is sovereign.

The fundamental value which^o Mill emphasizes is freedom, and it is not freedom as an abstract principle or independent good, but as a utilitarian value with which he is concerned: the necessity of freedom to the development and well-being of the individual and society. There is no question that we, as a democratic society, regardless of our particular or individual political persuasion, are profoundly committed to the supreme importance of free-

* There is discussion elsewhere in this report of other constitutional issues, such as the relationship between federal control of drug availability and provincial regulation of the practice of medicine (see Section IX *Opiate Maintenance*) and jurisdiction with respect to the regulation of advertising (see Section XIV *The Mass Media*).

dom. But opinions differ as to its proper or necessary limits, and the issue as to what should be the legislative policy towards non-medical drug use reflects the debate as sharply as any.

Before considering the response which has been made to Mill's thesis by philosophers and laymen, it should be observed that Mill himself admitted one very important qualification to his general principle that is of particular relevance for the subject of non-medical drug use. He took it to be obvious that the principle, that the state does not have the right to interfere with an individual in order to prevent him from causing harm to himself, does not apply to persons who do not have the requisite maturity for the exercise of truly free choice. As Mill put it:

It is, perhaps, hardly necessary to say that this doctrine is meant to apply only to human beings in the maturity of their faculties. We are not speaking of children, or of young persons below the age which the law may fix as that of manhood or womanhood. Those who are still in a state to require being taken care of by others, must be protected against their own actions as well as against external injury.

This is, of course, a qualification of major significance insofar as non-medical drug use is concerned because young people are so heavily involved in it. Unfortunately, Mill does not indicate the kind of intervention which he would consider appropriate to protect the young from causing harm to themselves. We do not know what intervention he would consider possible and compatible, as a practical matter, with the freedom on which he would insist for adults. As to the limits of state intervention which he would regard as permissible, insofar as adults are concerned, Mill indicates the general tenor of his thinking in certain observations concerning government policy with respect to poisons and the consumption of alcoholic beverages. Always making exception for the protection of the young, his policy with respect to poisons is that where they have legitimate uses the government must limit its intervention, despite the risks of harm, to assuring that people are suitably warned of the dangers by proper labelling. His reasoning is that, assuming such poisons have useful purposes, people should not be deprived completely of access to them merely because they present serious dangers. He goes further and says that people should not be put to the inconvenience and expense of having to obtain a special permission, such as a doctor's prescription, to obtain them. This is, in fact, the general approach which is adopted by present legislative policy to a wide variety of substances with a potential for harm, at least in certain applications. It is felt that they cannot be removed entirely from the market because of their necessity or usefulness. Such is the case with drugs having a medical value, despite the dangers which they may present in certain applications, and such is the case with the wide variety of industrial and household products containing volatile substances, gases and solvents. Despite their potential for harm, especially to young people, as a result of their chemical properties, it is not practicable to consider their removal from the market because of their utility, and in many cases necessity, in legitimate uses. Occasionally, it may be necessary to remove a substance

entirely from the market because of its general hazard to health even in its principal application. Such was the case with the cyclamates. With drugs having therapeutic value, the requirement of a prescription must for the reasons indicated by Mill—inconvenience and cost—be applied very judiciously.

With respect to the consumption of alcoholic beverages, Mill is of course against prohibition, and he sees the prohibition of sale as an attempt to prohibit use, as an infringement not only of the liberty of the seller but of the liberty of the user as well. Thus Mill would appear to be opposed to the “vice model” (which obtains in such matters as pornography and prostitution) whereby the law punishes the seller but not the user. At the same time Mill acknowledges that trade is a “social act” with which government has a right to concern itself. In other words, it affects others besides the trader. But on closer examination of what he has to say, it would appear that Mill is somewhat ambivalent or uncertain as to how far and upon what principles society is justified in interfering with the operations of the seller or purveyor of goods or services of which it disapproves. He concedes some force in the argument that access to the means of indulging in certain vices such as gambling and prostitution should be rendered as difficult as possible so as to reduce the opportunities for contact with them, but he does not feel that the same considerations apply to the sale of alcoholic beverages. The following passage reflects the general direction of his thinking, if not the whole of his analysis on this point:

There is considerable force in these arguments. I will not venture to decide whether they are sufficient to justify the moral anomaly of punishing the accessory, when the principal is (and must be) allowed to go free; of fining or imprisoning the procurer, but not the fornicator, the gambling-house keeper, but not the gambler. Still less ought the common operations of buying and selling to be interfered with on analogous grounds. Almost every article which is bought and sold may be used in excess, and the sellers have a pecuniary interest in encouraging that excess; but no argument can be founded on this, in favour, for instance, of the Maine Law; because the class of dealers in strong drinks, though interested in their abuse, are indispensably required for the sake of their legitimate use. The interest, however, of these dealers in promoting intemperance is a real evil, and justifies the State in imposing restrictions and requiring guarantees which, but for that justification would be infringements of legitimate liberty.

Mill recognized that such enterprises may be properly subjected to a variety of regulations and safeguards touching such matters as the reliability of the proprietors, hours of opening and closing, and the like, but he did not think that the regulations should have as their object, the attempt, by restricting the number of outlets, to render access to alcoholic beverages more difficult. Hence the reasoning seems to be that alcoholic beverages can be resorted to without abuse, and that it is not right to subject the majority who do not abuse them to inconvenience simply because of those who are liable to do so. Finally, Mill conceded that it was legitimate to allow a relatively heavy burden of taxes to fall upon alcoholic beverages since such taxes, which must

be imposed by the state for revenue purposes, are bound to inhibit some forms of consumption. "It is hence the duty of the State," said Mill, "to consider, in the imposition of taxes, what commodities the consumers can best spare; and *a fortiori*, to select in preference those of which it deems the use, beyond a very moderate quantity, to be positively injurious. Taxation, therefore, of stimulants, up to the point which produces the largest amount of revenue (supposing that the State needs all the revenue which it yields) is not only admissible, but to be approved of."

It is not clear from all this how Mill would approach the modern phenomenon of non-medical drug use, and more particularly how he would propose to allow adults freedom while providing adequate protection for the young. It is a reasonable assumption that he would have assimilated all non-medical use to that of alcohol and would have favoured a system of legal availability with regulations designed to minimize the opportunities for exposure of the young to it. It is also probable, however, that Mill would have found the problem particularly perplexing because of the extent to which modern youth is actively engaged in non-medical drug use. He might also have found considerable difficulty in determining that degree of maturity or discernment which should distinguish those who require protection from those who do not. The point is that Mill's general principle of non-interference with conduct that does not cause harm to third persons or to society generally is clear enough as an abstract proposition; it is its application, with its important qualification that the state has the right to intervene to protect persons under the age of maturity from causing harm to themselves, that presents difficulty, particularly in the context of contemporary drug use. With certain drug use the issues, if Mill's principles were to be followed, would be not merely how to protect the young while allowing freedom for the mature, but how to ameliorate the present problem by a system which continued to attempt to deprive the young of access to the drug.

Mill's thesis has been challenged by other philosophers and laymen on several grounds. First, there is challenge of the assumption that might seem to be implicit in Mill's general position, that harm which one causes to oneself can never be a cause of harm to others or to society generally. Many—indeed, we would think the vast majority—would strongly dispute this suggestion, particularly with respect to non-medical drug use. They would stress the effect which harmful drug use frequently has on the members of the user's family in emotional disturbance, family relations and discharge of one's family responsibilities, as well as the effect it has on others in the community who must assume some responsibility for dealing with the consequences to the user and the members of his family—the demands upon the over-taxed resources of medical and social service facilities, sometimes causing neglect of other priorities, as well as the expense of establishing and maintaining necessary additional facilities. They would also stress the general effect of harmful drug use on the motivation and productive capacity required to maintain the institutions and life of the society. They would be concerned with the possible effects of widely diffused drug use on the present way of life.

Actually, Mill concedes that the harm which one causes to oneself by a certain kind of behaviour may in many cases cause inconvenience, special burdens, and even injury to other individuals and to society generally, but he contends that this is not a reason for prohibiting the conduct altogether. It is his contention that we should deal with these secondary effects, as they arise, on their own merits as being attributable not to the general kind of conduct (for example, non-medical drug use) as such, but to certain factors in the individual, such as excessive use, lack of responsibility, and the like. Thus, in Mill's view, the fact that driving while under the influence of a drug may result in injury to others would not be a reason for prohibiting the use of the drug altogether. The injury to others is not the direct result of drug use as such but of driving while under the influence of the drug, and the law should direct itself to prohibiting and punishing this particular conduct rather than drug use as a whole.

While Mill in the enunciation of his central principle recognizes the right of society to use the criminal law or moral coercion for its legitimate self-protection, there is an implication that even if it could be demonstrated that non-medical drug use will frequently result in impairment of a person's general potential for usefulness to society, he would not consider this a sufficient ground for the exercise of such self-protection. This is where the issue is joined today. A majority of those who support the existing law do so not merely because of the effect of drug use on the welfare of the individual but chiefly because of what they feel to be its effect on the welfare of society as a whole. Mill would appear to exclude this, as a matter of principle, as a valid consideration for application of the criminal law, although the difference may be essentially a matter of appreciation of what constitutes a sufficient injury or harm to society to warrant intervention. What is really involved is a weighing of values: as Mill puts it, "the inconvenience is one which society can afford to bear, for the sake of the greater good of human freedom." Others take the view, in the case of non-medical drug use, that what is involved is more than a matter of "inconvenience" but rather a threat to other values on which the present society depends, such as the capacity and willingness to discharge personal responsibilities in work and personal relations, and that such value as there may be in the personal freedom to pursue non-medical drug use must cede to these other values which are held to be essential to the society's survival.

The philosophic debate concerning the appropriateness of the criminal law in the field of non-medical drug use is associated with expressions such as "crime without victim" and "law and morals" which obscure the essential issue: how different people characterize the personal and social effects of non-medical drug use in the light of their respective systems of value. This, rather than an abstract debate as to the appropriate limits of the criminal sanction, is what is really at stake. The quarrel is not so much with Mill's premises as with the practical conclusions which he drew from them in the light of a nineteenth century liberalism. Once he concedes, as he does, that society has a right to use the criminal law to protect itself, that a special protection is owing

to those under the age of majority, and that people may be restrained from giving public offence to the sense of decency of others, then it seems that what essentially separates him from his critics are questions of application—the weighing of the competing values in the light of the particular facts, and consideration of the ways and means best calculated to promote the ends.

For example, the English judge, Lord Devlin, who is generally regarded as the exponent of a legal philosophy that is at extreme variance with that of Mill, because of his insistence on the right, and indeed the duty, of the state to enforce morality, is seen on closer examination simply to take a different view of what the self-protection of the state requires. Although he speaks in a general way about the moral values of the majority as being essential to the preservation of the society, where the criminal law is concerned his notion of morality is not divorced from consideration of the actual harm caused by particular conduct. It would not appear that in his view any departure from the prevailing moral code is to be considered a social harm warranting the application of the criminal law. Once again, it is a question of the subjective evaluation of the effects of certain conduct from the social point of view. His general approach is set out in the following passage from *The Enforcement of Morals*:

I think, therefore, that it is not possible to set theoretical limits to the power of the State to legislate against immorality. It is not possible to settle in advance exceptions to the general rule or to define inflexibly areas of morality into which the law is in no circumstances to be allowed to enter. Society is entitled by means of its laws to protect itself from dangers, whether from within or without. Here again I think that the political parallel is legitimate. The law of treason is directed against aiding the king's enemies and against sedition from within. The justification for this is that established government is necessary for the existence of society and therefore its safety against violent overthrow must be secured. But an established morality is as necessary as good government to the welfare of society. Societies disintegrate from within more frequently than they are broken up by external pressures. There is disintegration when no common morality is observed and history shows that loosening of moral bonds is often the first stage of disintegration, so that society is justified in taking the same steps to preserve its moral code as it does to preserve its government and other essential institutions. The suppression of vice is as much the law's business as the suppression of subversive activities; it is no more possible to define a sphere of private morality than it is to define one of private subversive activity. It is wrong to talk of private morality or of the law not being concerned with immorality as such or to try to set rigid bounds to the part which the law may play in the suppression of vice. There are no theoretical limits to the power of the State to legislate against treason and sedition, and likewise I think there can be no theoretical limits to legislation against immorality. You may argue that if a man's sins affect only himself it cannot be the concern of society. If he chooses to get drunk every night in the privacy of his own home, is any one except himself the worse for it? But suppose a quarter or a half of the population got drunk every night, what sort of society would it be? You cannot set a theoretical limit to the number of people who can get drunk before society is entitled to legislate against drunkenness.

Despite the general sweep of his statements in favour of the enforcement of morality, it seems clear that Lord Devlin is involved in the same process as Mill of weighing the values of personal freedom and privacy against other values which he deems to be essential to the preservation of a certain kind of society. If anything, what possibly distinguishes them is the relative importance or primacy which Mill, in the particular political context of his time, assigned to freedom as a social as well as individual value. But the essential perspective of Lord Devlin is not at such variance with that of Mill as some of his language suggests. For at one place, he says, "There must be toleration of the maximum individual freedom that is consistent with the integrity of society." And at another place he says, "But before a society can put a practice beyond the limits of tolerance there must be a deliberate judgment that the practice is injurious to society." Thus, whether one agrees or not with Lord Devlin's assumption that morality is essential to the preservation of society, it would not appear to be his thesis that, irrespective of the harm which appears to be caused by the conduct in question, it is proper to use the criminal law to enforce morality.

Nevertheless Lord Devlin's general position on law and morality was attacked by the English philosopher, H. L. A. Hart, on the ground that since his belief in the importance of morality to the preservation of society appeared to be an *a priori* rather than an empirical conclusion, and he seemed to equate society with its morality, the natural and inevitable tendency of his position would be to regard *any* departure from the prevailing morality as a threat to the preservation of the society. Hart himself is in essential agreement with Mill that the criminal law should not be used to enforce morality, but he differs from Mill in regarding it as a legitimate object of the law to attempt to prevent individuals (including those of the age of maturity) from doing harm to themselves. This he justifies as "paternalism" (as distinct from "legal moralism", which he ascribes to Lord Devlin) on the ground that Mill exaggerated the capacity of adults to make wise use of their freedom. Hart's notion of paternalism may also impliedly challenge another assumption of Mill—that somehow the young can be protected while conceding freedom to adults. If an attempt is to be made to deny access to certain drugs to the young, either on the paternalistic basis of protecting them from causing harm to themselves or on the basis that their use of drugs will have an adverse effect on society as a whole, then it must be asked whether the achievement of this purpose is rendered more or less difficult by permitting adults to have access to such drugs.

On this whole philosophic issue as to whether, in principle, the criminal law should be used in the field of non-medical drug use, we adhere to the general position which we expressed in the *Interim Report* as follows:

In our opinion, the state has a responsibility to restrict the *availability* of harmful substances—and in particular to prevent the exposure of the young to them—and that such restriction is a proper object of the criminal law. We can not agree with Mill's thesis that the extent of the state's responsibility and permissible interference is to attempt to assure that people are warned

of the dangers. . . . Obviously the state must be selective. It cannot attempt to restrict the availability of any and all substances which may have a potential for harm. In many cases it must be satisfied with assuring adequate information. We simply say that, in principle, the state can not be denied the right to use the criminal law to restrict availability where, in its opinion, the potential for harm appears to call for such a policy. [Paragraph 442]

. . . Without entering into the distinction between law and morality, we also subscribe to the general proposition that society has a right to use the criminal law to protect itself from harm which truly threatens its existence as a politically, socially and economically viable order for sustaining a creative and democratic process of human development and self-realization. [Paragraph 443]

The criminal law should not be used for the enforcement of morality without regard to potential for harm. In this sense we subscribe to what Hart refers to as the "moderate thesis" of Lord Devlin. We do not subscribe to the "extreme thesis" that it is appropriate to use the criminal law to enforce morality, regardless of the potential for harm to the individual or society.

If we admit the right of society to use the criminal law to restrict the availability of harmful substances in order to protect individuals (particularly young people) and society from resultant harm, it does not necessarily follow that the criminal law should be applied against the user as well as the distributor of such substances. There is no principle of consistency that requires the criminal law to be used as fully as possible or not at all, in a field in which it may have some degree of appropriateness. We do not exclude in principle the application of the criminal law against the user since it is a measure which can have an effect upon the availability and the exposure of others to the opportunity for use, but the appropriateness or utility of such an application must be evaluated in the light of the relative costs and benefits. [Paragraph 444]

We did express a general reservation concerning the offence of simple possession as follows:

Our basic reservation at this time concerning the prohibition against simple possession for use is that its enforcement would appear to cost far too much, in individual and social terms, for any utility which it may be shown to have. We feel that the probability of this is such that there is justification at this time to reduce the impact of the offence of simple possession as much as possible, pending further study and consideration as to whether it should be retained at all. The present cost of its enforcement, and the individual and social harm caused by it, are in our opinion, one of the major problems involved in the non-medical use of drugs. [Paragraph 449]

In effect, it is not particularly helpful in this case to attempt to set theoretical limits to the application of the criminal law. The criminal law may properly be applied, as a matter of principle, to restrict the availability of harmful substances, to prevent a person from causing harm to himself or to others by the use of such substances, and to prevent the harm caused to society by such use. In every case the test must be a practical one: we must weigh the potential for harm, individual and social, of the conduct in question against the harm, individual and social, which is caused by the

application of the criminal law, and ask ourselves whether, on balance, the intervention is justified. Put another way, the use of the criminal law in any particular case should be justified on an evaluation and weighing of its benefits and costs. Generally speaking, the adverse effects for the individual of the criminal law process are such that it must be justified in each case by rational and convincing reasons of necessity, in relation to other available means of achieving the desired purpose.

F.3 THE LAW WITH RESPECT TO THE OFFENCES OF SIMPLE POSSESSION, TRAFFICKING, POSSESSION FOR THE PURPOSE OF TRAFFICKING, IMPORTING, AND CULTIVATION

SIMPLE POSSESSION

Section 3 of the *Narcotic Control Act*¹ provides:

3. (1) Except as authorized by this Act or the regulations, no person shall have a narcotic in his possession.

(2) Every person who violates subsection (1) is guilty of an indictable offence and is liable

(a) upon summary conviction for a first offence, to a fine of one thousand dollars or to imprisonment for six months or to both fine and imprisonment, and for a subsequent offence, to a fine of two thousand dollars or to imprisonment for one year or to both fine and imprisonment; or

(b) upon conviction on indictment, to imprisonment for seven years.

Section 41 of the *Food and Drugs Act*,² respecting simple possession of the restricted drugs (strong hallucinogens), is in essentially the same terms, except that the maximum penalties upon indictment are a fine of five thousand dollars or imprisonment for three years or both.

For the purpose of the *Narcotic Control Act* and the *Food and Drugs Act*, "possession" has the same meaning as it has under the *Criminal Code*, where it is defined in section 3(4) as follows:

(a) a person has anything in possession when he has it in his personal possession or knowingly

(i) has it in the actual possession or custody of another person, or

(ii) has it in any place, whether or not that place belongs to or is occupied by him, for the use or benefit of himself or another person; and

(b) where one of two or more persons, with the knowledge and consent of the rest, has anything in his custody or possession, it shall be deemed to be in the custody and possession of each and all of them.

It has been held that there is no "minimal" amount required to establish the offence of simple possession,³ but an "infinitesimal" amount found in traces in the accused's clothing has been held insufficient for conviction.⁴ The accused must be shown to have been in possession of a drug the pos-

session of which is prohibited by the statute. Such proof is made in practice by an analyst's certificate.⁵ A certificate of an analyst designated under the *Narcotic Control Act* or the *Food and Drugs Act* is admissible in evidence as to the nature of a drug in any prosecution for offences under the Act. In order for such a certificate to be admissible the party intending to produce it must, before the trial, give the other party reasonable notice of such intention together with a copy of the certificate. The party against whom the certificate is produced may, with leave of the court, require the attendance of the analyst for purposes of cross-examination. The accused must know that he has a prohibited drug in his possession. In other words, he must have the necessary intention or *mens rea* traditionally required for criminal responsibility.⁶ The burden is on the accused to prove any exception, exemption, excuse or qualification prescribed by law which operates in his favour—for example, that his possession is authorized by the act or regulations.⁷ Where the accused is charged with being in constructive possession by virtue of the fact that another person has possession with his knowledge and consent, it is not sufficient to show mere acquiescence; it is necessary to show some measure of control or right to control over the drug.⁸

TRAFFICKING

Section 4 of the *Narcotic Control Act* provides:

4. (1) No person shall traffic in a narcotic or any substance represented or held out by him to be a narcotic.

(2) No person shall have in his possession any narcotic for the purpose of trafficking.

(3) Every person who violates subsection (1) or (2) is guilty of an indictable offence and is liable to imprisonment for life.

Section 34 of the *Food and Drugs Act* with respect to controlled drugs (amphetamines and barbiturates) and section 42 of the Act with respect to restricted drugs (strong hallucinogens) are in the same terms, except for the penalty provision, which reads as follows:

Every person who violates subsection (1) or (2) is guilty of an offence and is liable

- (a) upon summary conviction to imprisonment for eighteen months; or
- (b) upon conviction on indictment, to imprisonment for ten years.

To traffic under the *Narcotic Control Act* means "to manufacture, sell, give, administer, transport, send, deliver or distribute", or "to offer to do" any of these things without authority.⁹ Under the *Food and Drugs Act*, Parts III and IV, applicable to controlled drugs and restricted drugs, it means "to manufacture, sell, export from or import into Canada, transport or deliver" without authority.¹⁰ "Sell" is defined by the *Food and Drugs Act* as including "sell, offer for sale, expose for sale, have in possession for sale, and distribute".¹¹ Thus under the *Food and Drugs Act* trafficking includes importing or exporting, which is a separate offence calling for a minimum mandatory sentence of seven years' imprisonment under the *Narcotic Control Act*.

It is not necessary to be in possession to be a trafficker¹² or to be guilty of the offence of offering to do an act defined as trafficking.¹³ The purchaser from a trafficker is not guilty of the offence of trafficking.¹⁴ Attempts have been made to extend the definition of trafficking by relying on the word "transport" in the definition, and arguing that any movement of the drug from one place to another is sufficient for trafficking. The courts have held that the word "transport", when read in the context of other words in the definition, cannot be applied to the movement of the drug by the accused for his own use.¹⁵ It has recently been held, however, that transporting for one's own use by an "innocent agent" amounts to trafficking.¹⁶

For the offence of trafficking, unlike that of simple possession (or possession for the purpose of trafficking), it is not necessary that the substance actually be one of the prohibited drugs; it is sufficient that it be represented or held out to be such by the accused.¹⁷

POSSESSION FOR THE PURPOSE OF TRAFFICKING

Unlike the case of trafficking, where it is sufficient that the drug be represented or held out to be one which is included in the Schedule of the *Narcotic Control Act* or Schedule G or H of the *Food and Drugs Act*, it is necessary for the offence of possession for the purpose of trafficking that the accused actually be in possession of such a drug.

A case of possession for the purpose of trafficking proceeds as if it were two trials. The law provides that if the accused does not plead guilty the trial shall proceed as if it were a prosecution for the offence of simple possession, and after the close of the case for the prosecution and after the accused has had an opportunity to make full answer and defense, the court shall make a finding as to whether or not the accused was in unauthorized possession of a prohibited drug.¹⁸ If the court finds that the accused was not in unauthorized possession of a prohibited drug he shall be acquitted, but if it finds that he was in such possession, he shall be given an opportunity of establishing that he was not in possession for the purpose of trafficking, and thereafter the prosecutor shall be given an opportunity of adducing evidence to establish that the accused was in possession for the purpose of trafficking. If the accused establishes that he was not in possession for the purpose of trafficking, he shall be acquitted of the offence as charged but, in the case of a charge under the *Narcotic Control Act* or under Part IV of the *Food and Drugs Act* respecting restricted drugs, he shall be convicted of the offence of simple possession and sentenced accordingly.

This exceptional provision concerning the burden of proof is usually justified on the ground that it is ordinarily very difficult to prove the intention to traffic. In the absence of an admission, proof of such intention must be by way of inference from circumstantial evidence, such as the quantity of the drug discovered in the accused's possession.¹⁹

There has been a serious question as to the precise nature of the burden placed upon the accused by this procedure and the extent to which

it operates in practice as a departure from the traditional presumption of innocence. The courts have distinguished the secondary burden of adducing evidence of a particular fact from the primary burden of proving it when all the evidence is in.²⁰ The primary burden is always on the Crown to establish all the elements of the crime by proof beyond a reasonable doubt. By the special procedure with respect to the offence of possession for the purpose of trafficking the Crown is relieved of the burden of adducing evidence of the intention to traffic. Proof of unauthorized possession is evidence from which a court may infer an intention to traffic. In effect, it raises a statutory presumption of such intention. The difficult question has been to determine what the accused must show to rebut this presumption and whether the burden which is cast upon him violates the right affirmed by the *Canadian Bill of Rights* "to be presumed innocent until proved guilty according to law . . ."²¹

The issue has been the meaning to be given the word "establish" in the provision ". . . if the accused establishes that he was not in possession of the narcotic for the purpose of trafficking, he shall be acquitted . . . if the accused fails to establish that he was not in possession of the narcotic for the purpose of trafficking he shall be convicted . . .". The question has been whether it is sufficient for the accused to raise a reasonable doubt as to the intention to traffic or whether he must prove that he did not have such an intention by a preponderance of evidence or on a balance of probabilities. Until June 1971 the weight of the judicial authority was that it was sufficient for the accused to raise a reasonable doubt. In our *Interim Report* we expressed the law on the point as follows:

. . . the legislation has deemed that evidence of unauthorized possession may support an inference of the mental element without any further affirmative evidence on this point, unless the accused gives a reasonable probable alternative explanation for his possession, whether from his own evidence, or other witnesses, or from evidence already before the Court. The Court need not draw this inference even when the accused does not adduce any evidence, but he takes the risk it will do so. In all cases, though, if the accused by argument or evidence or cross-examination of the Crown witnesses establishes a reasonable doubt about his alleged purpose of trafficking, he must be acquitted of the offence of possession for the purpose of trafficking. [Paragraph 379]

This statement was based on such decisions as *Regina v. Hartley and McCallum*,²² in which Davey J. A. of the British Columbia Court of Appeal expressed himself as follows:

Crown counsel submits that in order to discharge that burden the appellant must show upon a preponderance of the evidence or on the balance of probabilities that he was not trafficking. . . .

It seems to me that it is established by the cases relied upon by Crown counsel . . . that if the prisoner by argument or evidence or cross-examination of the Crown's witnesses establishes a reasonable doubt as to whether he had possession of the narcotic for the purpose of trafficking, he must be acquitted

of that particular offence, namely, having possession for the purpose of trafficking, and in the result he ought to be convicted only of ordinary possession.

Later in the case of *Regina v. Silk*²³ the same court expressed the view that to deprive the accused of the benefit of a reasonable doubt on the issue of the intent to traffic would be contrary to the presumption of innocence protected by the *Canadian Bill of Rights*. In other words, the court held that the presumption of innocence is the right of the accused to be presumed innocent unless and until his guilt is proved beyond a reasonable doubt, and that this presumption necessarily carries the right to the benefit of a reasonable doubt on the issues of fact, whether it exists on the evidence offered by the Crown or whether it is raised by the evidence of the accused.

This would no longer appear to be the law as a result of the decision of the Supreme Court of Canada in *Regina v. Appleby*.²⁴ There the court was considering the statutory presumption created by section 237(1)(a)²⁵ of the *Criminal Code* whereby an accused who is proved to have occupied the seat ordinarily occupied by the driver of a motor vehicle is "deemed to have had the care or control of the vehicle unless he establishes that he did not enter or mount the vehicle for the purpose of setting it in motion", but the reasoning, at least of the majority in the case, would appear to be equally applicable to the burden of proof thrown upon the accused in a case of possession for the purpose of trafficking. Indeed, the court considered the decisions with respect to the *Narcotic Control Act* and the *Food and Drugs Act*, including the *Hartley* and *Silk* cases. The court held that the statutory presumption could not be rebutted by proof which merely raised a reasonable doubt; that a burden was placed on the accused to negate the presumption by a preponderance of evidence or proof which carried on a balance of probabilities. In other words, he has the burden of proof which applies in civil proceedings.

The essential basis of the decision was that the word "establishes" connotes a degree of proof beyond that which may be necessary to raise a reasonable doubt. The court further held that placing such a burden upon the accused was not contrary to the presumption of innocence protected by the *Canadian Bill of Rights*. In *Appleby* the majority of the court held in effect that the right to be presumed innocent until proved guilty according to law is not a right to be presumed innocent until proved guilty beyond a reasonable doubt. Laskin, J., in a special opinion concurring in the result arrived at by the other members of the court, appeared to interpret the presumption of innocence in the *Canadian Bill of Rights* as including the right to the benefit of any reasonable doubt but then found that there was no conflict with this right in holding that it was insufficient for the accused who is faced with the statutory presumption of section 237 to raise a reasonable doubt. It should be noted that the United States Supreme Court has held that the right to the benefit of reasonable doubt is protected by the due process clause of the Constitution.²⁶ Due process is also affirmed in the *Canadian Bill of Rights*, and the specific reference to the presumption of

innocence is only a particular aspect of it. Due process does not appear to have been argued in the *Appleby* case.

On the basis of due process and the rational connection test which has been applied to the constitutionality of criminal statutory presumptions in the United States,²⁷ it would be open to argue that the statutory presumption in the *Narcotic Control Act* is distinguishable from that in section 237 of the *Criminal Code*. It is reasonable to assume, however, that the conclusion of the Supreme Court in the *Appleby* case would be applied to the statutory burden of proof cast upon the accused in a prosecution for the offence of possession for the purpose of trafficking. The result of the case is that the burden is even heavier than we assumed when we expressed concern about it in the *Interim Report*. What it means is that the fact of intent to traffic is not to be governed by the ordinary rule concerning benefit of reasonable doubt. It is deemed to be proved beyond a reasonable doubt by proof of unauthorized possession, and it can only be negated by proof which carries on a balance of probabilities. If the evidence of the accused merely raises a reasonable doubt as to the intent to traffic he is not entitled to the benefit of that doubt.

IMPORTING AND EXPORTING

Section 5 of the *Narcotic Control Act* provides:

5. (1) Except as authorized by this Act or the regulations, no person shall import into Canada or export from Canada any narcotic.

(2) Every person who violates subsection (1) is guilty of an indictable offence and is liable to imprisonment for life but not less than seven years.

As indicated above, importing and exporting fall within the definition of trafficking under the *Food and Drugs Act*.

Importing has been held to be the act of bringing a drug into the country from the outside, regardless of the means employed.²⁸

CULTIVATION

Section 6 of the *Narcotic Control Act* provides:

6. (1) No person shall cultivate opium poppy or marihuana except under authority of and in accordance with a licence issued to him under the regulations.

(2) Every person who violates subsection (1) is guilty of an indictable offence and is liable to imprisonment for seven years.

(3) The Minister may cause to be destroyed any growing plant of opium poppy or marihuana cultivated otherwise than under authority of and in accordance with a licence issued under the regulations.

It has been held that while cultivation is more than mere possession, and requires some proof that the accused has devoted labour and attention

to the plant to assist its growth, such proof may be made by circumstantial evidence.²⁹

F.4 APPLICABLE PROVISIONS OF THE CRIMINAL CODE

Any matter concerning the offences created by the *Narcotic Control Act* and the *Food and Drugs Act* which is not specially provided for in these statutes is governed by the provisions of the *Criminal Code*¹ of Canada. These provisions relate to such matters as principles of criminal responsibility, parties to offences, attempts, conspiracies and accessories, jurisdiction and procedure. Basically, what the special statutes do is to define the offence and provide the penalty. They also touch such matters as statutory presumption and burden of proof, as well as special provisions concerning methods of law enforcement. For the rest, the *Criminal Code* applies.

Certain offences created by the *Criminal Code* have a direct bearing on the suppression of conduct related to non-medical drug use. Probably the most important of these is conspiracy,² to which it is generally necessary to resort in attempting to convict persons involved in trafficking at higher levels of organization. Since such persons are usually careful to have no direct contact with the substance in which the trafficking is being carried on, nor with the lower levels of the distribution system, it is rarely possible to discover them in the actual act of trafficking or of possession for the purpose of trafficking.

The offences of obtaining by false pretense,³ forgery,⁴ and uttering a forged document⁵ are sometimes invoked in connection with attempts to obtain drugs illegally. There are also several offences covering conduct which involves injury or the threat of injury to third persons as a result of the use of drugs. There is the offence of murder by administering a stupefying or overpowering thing for the purpose of facilitating the commission of an offence or facilitating flight after committing or attempting to commit an offence,⁶ the offence of administering a noxious thing,⁷ the offence of overcoming resistance to an offence by the administration of a drug,⁸ and the offences of administering a drug for the purpose of illicit intercourse,⁹ and procuring an abortion.¹⁰ There is also the offence of driving a motor vehicle or having the care or control of it when the ability to drive is impaired by alcohol or any other drug.¹¹

It is a criminal offence to counsel, procure or incite another person to commit an offence,¹² and this provision is applicable like other provisions of the *Criminal Code* to drug offences.¹³ If the offence is actually committed, the person who counsels or procures the other person becomes a party to the offence.¹⁴ There is the similar offence of aiding and abetting a person to commit an offence, which also makes the person who aids and abets a party to the offence.¹⁵

F.5 JUVENILE DELINQUENCY LEGISLATION

A violation of the drug laws is an act of juvenile delinquency under the *Juvenile Delinquents Act*,¹ which defines a "juvenile delinquent" as follows:

... any child who violates any provision of the *Criminal Code* or of any federal or provincial statute, or of any by-law or ordinance of any municipality, or who is guilty of sexual immorality or any similar form of vice, or who is liable by reason of any other act to be committed to an industrial school or juvenile reformatory under any federal or provincial statute. . . .

The age limit for the application of the *Juvenile Delinquents Act* varies among the provinces from under sixteen in some to under eighteen in others. Where a child is over the age of fourteen and he is alleged to have committed an indictable offence the case may be transferred or "waived" from the juvenile court to the ordinary criminal court.² Cases involving drug offences are transferred to the ordinary courts from time to time.³ Sometimes, however, the case is remitted to the juvenile court.⁴

The statistics of juvenile cases are not kept in a manner which permits them to be used as a reliable basis for estimating the number of cases involving drug offences which come before the juvenile courts. We know that there is a significant number of juveniles who are treated as delinquents by reason of drug offences, but there is no statistical basis for a reasonable estimate of the number.

F.6 SPECIAL METHODS OF ENFORCEMENT

INTRODUCTION

The peculiar nature of drug crimes—the fact that the people involved in them are consenting and cooperating parties, and there is rarely, if ever, a victim who has reason to complain, as in crimes against persons and property—makes enforcement of the drug laws very difficult. The police are rarely assisted by complainants. For the most part they have to make their own cases. Moreover, the activity involved in non-medical drug use is relatively easy to conceal. It can be carried on, by agreement of the parties involved, in places which are not easily observed by the police. Further, the substances and equipment involved are relatively easy to conceal or dispose of.

All of these difficulties have given rise to the development of unusual methods of enforcement. They are by no means confined in their application to the drug laws, but the combined effect of their use in connection with these laws has been one of the chief causes of concern about the impact of the criminal law in this field. The police admit the use of these methods in one degree or another, but they claim that they are absolutely essential to effective enforcement of the drug laws. Critics of these methods question their

necessity but recognize the difficulty of challenging the professional opinion of the police on this point. Their chief contention is that these unusual methods represent a cost of enforcing the drug laws that is too great for the benefit derived from it. In particular, they say that the use of these methods has brought law enforcement into disrespect among young people, and has undermined respect for police and law generally.

These unusual methods of enforcement are special powers of search and seizure, the use of force to effect entry to premises and to recover evidence, the use of undercover agents and informers, and the encouragement or provocation of drug offences.

POWERS OF SEARCH AND SEIZURE

Search of premises. Unless they have special statutory powers police can only search premises without a search warrant as an incident of arrest. Under the *Narcotic Control Act*¹ and the *Food and Drugs Act*² the police are empowered, without the necessity of a search warrant, to enter and search any place other than a dwelling-house in which they reasonably believe that there is a prohibited drug by means of or in respect of which an offence has been committed.

In order to be able to search a dwelling-house, other than as an incident of arrest, the police must obtain a search warrant from a justice, who must be satisfied upon an information under oath that there are reasonable grounds for believing that there is a prohibited drug by means of which an offence has been committed in the dwelling.³ The R.C.M. Police, however, may, and generally do, carry out such a search under the authority of a writ of assistance, which does not require them to establish such reasonable grounds for belief before a justice.

A writ of assistance is a general warrant that is not limited as to time or place and remains valid during the entire career of the law enforcement officer to whom it is issued. It is obtained upon application by the Minister of National Health and Welfare to a judge of the Federal Court.⁴ The judge has no discretion in the matter. It is mandatory that he issue the writ upon such an application. The writ empowers the officer named in it, with the assistance of such other persons as he may require, to enter any dwelling-house at any time and search for prohibited drugs. In practice writs of assistance are issued under the drug laws only to officers of the R.C.M. Police.

In acting under a writ of assistance a police officer must reasonably believe that the dwelling-house contains a prohibited drug by means of or in respect of which an offence has been committed, but the grounds for his belief are not, as in the case of a search warrant, subject to review by a justice before he uses the writ. Officers who hold these writs are obliged, however, by the R.C.M. Police regulations to report on the use which they make of them, and they are subject to disciplinary measures for any apparent abuse of them.⁵

The chief distinction between the search warrant and the writ of assistance is the convenience of the latter. It avoids what may in many cases be a crucial loss of time. In stressing the necessity of the writ of assistance the R.C.M. Police have stated that the conditions under which searches have to be carried out under the drug laws make it very difficult in practice to obtain search warrants. They have emphasized the mobility of drug offenders, the fact that they often do not have an identified address, and the fact that searches have to be carried out very often at night when it is difficult to obtain a warrant.

Other police claim to be at a disadvantage for lack of the writ of assistance, and this is one of the reasons they have often preferred to act with the R.C.M. Police.

Search of the person. As a general rule police only have the power to search the person as an incident of arrest, in order to discover anything which might serve as evidence of the crime for which the arrest is made, or to disarm the person arrested. Under the *Narcotic Control Act*⁶ and the *Food and Drugs Act*⁷ the police are empowered, when searching any dwelling-house or other place, to search any person found therein. They are not obliged to make an arrest in order to carry out a search of the person.

Seizure. At common law a police officer has the power to seize anything uncovered in the course of a search of premises which may be evidence of the crime for which a person is arrested. When acting under a search warrant he is expressly authorized to seize and bring the thing for which the warrant has been issued before a justice. Under the *Narcotic Control Act*⁸ and the *Food and Drugs Act*⁹ there is an express power given to a police officer, when searching any dwelling-house or other place, to seize and take away any prohibited drug found in such place, anything in which he reasonably suspects such a drug to be contained or concealed, or any other thing by means of or in respect of which he reasonably believes an offence under the Act has been committed or that may be evidence of such an offence. This would include any motor vehicle by means of which an offence has been committed. The Act provides for forfeiture of things seized in the event of conviction. A person who has an interest in a motor vehicle which was seized but who was not in possession of it when it was seized or in any way responsible for its use to commit an offence may have his interest declared by a court. The vehicle is then returned to him or an amount equal to the value of his interest paid to him.¹⁰

THE USE OF FORCE

The Acts provide that in carrying out a search a police officer may, with such assistance as he deems necessary, break open any door, window, lock, fastener, floor, wall, ceiling, compartment, plumbing fixture, box, container or any other thing.¹¹

The courts have also recognized that a police officer may use reasonable force upon the person to recover the prohibited substance. This is really an incident of the right to search the person. Such force is sometimes used to prevent heroin users from swallowing a supply of the drug which they have concealed in their mouth. In *R. v. Brezack*¹² the Ontario Court of Appeal affirmed the legality of this practice and said:

... it is well known that, in making arrests in these narcotic cases, it would often be impossible to find evidence of the offence upon the person arrested if he had the slightest suspicion that he might be searched. Constables have a task of great difficulty in their efforts to check the illegal traffic in opium and other prohibited drugs. Those who carry on the traffic are cunning, crafty and unscrupulous almost beyond belief. While, therefore, it is important that constables should be instructed that there are limits upon their right of search, including search of the person, they are not to be encumbered by technicalities in handling the situations with which they often have to deal in narcotic cases, which permit them little time for deliberation and require the stern exercise of such rights of search as they possess.

The use of force by a policeman in an illegal search is an assault, and a person has a right under the *Criminal Code* to use such force as is necessary to resist such assault.¹³

THE USE OF UNDERCOVER AGENTS AND INFORMERS

Because of the difficulty of detecting drug crimes the police rely heavily on undercover agents and informers. Undercover agents may have to engage in drug transactions in order to establish an identity or gain acceptance in the drug milieu. For this purpose they may purchase drugs in what the police call a "non-evidence buy", as distinct from a purchase to establish evidence against an offender. The R.C.M. Police and other police pay persons to give them information concerning drug offences or persuade them to give such information in return for enforcement concessions. This is considered to be a legitimate law enforcement practice. Since the police rarely receive complaints they are very dependent upon information obtained in this way. As one R.C.M. Police officer put it to a Commission investigator: "Information is our business." Individual officers spend a great deal of time developing their sources of information.

During the course of our inquiry there were public complaints that young people were being recruited by the police as informers. In some cases the police were accused of using the threat of prosecution to induce youths to act as informers. It has not been possible to verify the facts of these cases in a manner that would support specific charges, but the official position of the R.C.M. Police is that they do not approve of such practices.

The police claim that the use of undercover agents and informers not only assists in the detection of drug offences but helps to control drug availability by making it more hazardous to engage in trafficking.

POLICE ENCOURAGEMENT OR INSTIGATION OF OFFENCES

Undercover agents have engaged in a practice which has been disavowed by officials but which, if we are to judge from reported decisions, continues to be used. This is the practice of inducing a person to commit a violation of the drug laws. This is often referred to as acting as an *agent provocateur*. In the United States the practice is called "entrapment".

A common example is for an undercover agent to ask a person to sell or give him a prohibited drug. There were frequent complaints of this practice in the course of our public hearings although it was not possible to conduct the kind of full judicial inquiry that would be necessary to verify the facts in particular cases. The reported decisions, however, contain several examples of cases in which this practice has been used.¹⁴

A distinction must be drawn between offering the occasion for the commission of a crime to a person who has already formed the intention of committing it, and inciting a person who has not yet formed such an intention to commit a crime in order to have the basis for prosecution against him. It is our impression from our inquiry that law enforcement officials at the senior level do not attempt to justify the second kind of case. They contend however, that the usual case is one in which an undercover agent buys from a person who is more than willing to sell.

As indicated in Appendix F.4 *Applicable Provisions of the Criminal Code*, counselling and aiding and abetting a person to commit a criminal offence are themselves criminal offences. Apart from special statutory provision, law enforcement officers have no immunity from criminal liability on the ground of "public duty" for offences committed in the course of their functions.¹⁵ The extent, however, to which they may be held liable in practice is not clear.¹⁶ A court may take the view that when doing something for law enforcement purposes which would otherwise be an offence they do not have the necessary criminal intent for liability.

Police encouragement or instigation has not been recognized as a defence to a criminal charge in Canadian law.¹⁷ There is some precedent for ordering a stay of prosecution in such circumstances on the ground of an abuse of process, but a serious doubt has been raised as to whether this is a valid approach.¹⁸ Courts have, however, treated police provocation as ground for mitigation of sentence.¹⁹

The American courts have developed the defence of "entrapment" as a basis for acquittal where the intention to commit the offence has been implanted by law enforcement officials.²⁰ The Canadian Committee on Corrections recommended the legislative adoption of a similar defence in Canada in favour of a person who does not have "*a pre-existing intention to commit the offence*".²¹

F.7 PROSECUTION IN DRUG CASES

The prosecutions in drug cases under federal law are conducted by prosecutors appointed by the Attorney General of Canada. This is a long-established practice which operates by tacit agreement with the provinces. The federal government assumes responsibility for the prosecution in criminal matters governed primarily by special federal statutes rather than by the *Criminal Code*. In such matters, however, federal prosecutors conduct the cases, even where provisions of the *Criminal Code* may be involved, as, for example, in a case of conspiracy to traffic.

Provincial acquiescence in this federal role in the administration of criminal justice (which, apart from legislation with respect to procedure in criminal matters, falls within provincial jurisdiction¹) is explained by several factors: first, and foremost, the primary responsibility for law enforcement in these areas which has traditionally been assumed by the R.C.M. Police; the specialized expertise which the federal prosecutors have developed in these areas; and finally, the fact that the provincial law enforcement authorities have more than enough to look after with their primary responsibility for the application of the *Criminal Code* and provincial statutes of a penal nature. In any event, the federal assumption of responsibility for prosecution in these special areas of the criminal law has never been seriously challenged. The province could undertake prosecutions in these areas, but even where provincial or municipal police forces initiate drug cases, their policy is to refer them to the federal prosecutors. Although there has been a shift in responsibility for enforcement of the prohibition against simple possession from the R.C.M. Police to the municipal police forces, there has not been a corresponding shift in the responsibility for prosecution.

To provide for the necessary legal services in these special areas of the criminal law (and in the civil cases in which the federal Crown must be represented), the federal Department of Justice maintains regional offices in the cities of Montreal, Toronto, Edmonton, Winnipeg and Vancouver. In areas which cannot be served under these offices standing agents are appointed by the Department where the volume of business warrants it. In other cases, ad hoc appointments are made.

By means of policy directives from Ottawa and the organization of the regional offices an effort is made to ensure a measure of consistency and uniformity in prosecution. The office in Ottawa exercises a general control with respect to the discretion that is open to prosecutors, and the directors of the regional offices exercise a close control over daily operations. The main objective of the regional offices is to dispatch an increasing caseload as efficiently as possible. The federal prosecutors have, generally speaking, acquired a good reputation for professional standards and fairness. They have tried to deal in an even-handed way in a controversial field of law where there is a strong body of opinion opposed to certain aspects of the law and its enforcement. Because of the very controversial nature of their work, the

approach of the prosecutors to the exercise of discretion is a cautious one. They are very conscious of the possible abuse of discretion.

Another important consideration affecting the exercise of discretion by federal prosecutors in the drug field is the dominant role played by the police, and particularly the R.C.M. Police, in the initiation and direction of cases. The federal prosecutors work very closely with the police in these cases, and make few decisions without their approval.

The decision as to whether a charge should be laid. This is a decision as to whether there is to be a prosecution at all, and as to the nature of the charge on which it is to be based. Outside the Montreal region, this decision is usually taken by the police without prior consultation with the prosecutors, but in the Montreal region it is customary for the police to consult the prosecutors first. The difference in practice is thought to be due to the difference in the volume of cases which has to be handled in the different regional offices. Looking at drug prosecutions in Canada as a whole, it may be said that the police play the dominant role in the decision as to whether to prosecute and as to the charge to be laid. However, prosecutors have an opportunity to review the appropriateness of the charge after it has been laid and to correct any errors which may have been made. They may withdraw a case if they are of the opinion that there is not sufficient evidence to support it. Withdrawal of a charge is a decision over which regional directors exercise close supervision.

The decision as to whether to proceed by indictment or summary conviction. The distinction between indictable offences and summary offences is basically one of relative seriousness, which is reflected in the range of penalties.² When the Crown is given the option to proceed by indictment or summary conviction it is really given the option to decide how seriously it wishes to treat the offence. An important consequence of the distinction between indictable offences and summary offences is that the *Identification of Criminals Act*,³ which provides for fingerprinting and photographing and the keeping of such records in a central registry, applies to persons accused or convicted of indictable offences.⁴ Federal legislation which provides for the option to proceed on summary conviction has been held by the Supreme Court of Canada not to be in violation of the right to equality before the law which is affirmed by the *Canadian Bill of Rights*.⁵

The option has existed since August 1969 in cases of simple possession under the *Narcotic Control Act*, and it exists in all cases under Parts III and IV of the *Food and Drugs Act*, but the discretion of prosecutors with respect to it is circumscribed by policy directive from senior officials of the Department of Justice in Ottawa. In July 1969, when Bill S-15 creating this option was pending, the Department issued the following "general rules" to determine how it should be applied in cases of simple possession:

- (1) Cannabis, controlled drugs, restricted drugs.
 - (a) first or second offence, summary conviction;
 - (b) third or subsequent offence, indictment.

- (2) Hard drugs (i.e. drugs other than cannabis, controlled or restricted drugs).
 - (a) first offence, summary conviction;
 - (b) second or subsequent offence, indictment.
- (3) Hard drugs after conviction relating to cannabis, controlled or restricted drugs, indictment.
- (4) Cannabis, controlled or restricted drugs, after conviction relating to hard drugs, indictment.
- (5) Charges including both hard drugs and cannabis, controlled or restricted drugs, first offence, summary conviction.
- (6) Indictment in any case that would otherwise be time-barred.

The directive pointed out that these were general instructions only; that provision would be made for exceptional cases; but that consistency and uniformity of enforcement would be ensured by prior consultation with designated officials in Ottawa. The chief cases in which discretion to depart from these rules has been exercised is where the accused has a previous criminal record. In practice, the prosecutors in the main metropolitan areas have been permitted, because of their experience, to exercise discretion in exceptional cases without consultation with the departmental officials in Ottawa.

There is no general policy directive as to when the prosecution may proceed by summary conviction, rather than indictment, in cases involving trafficking or possession for the purpose of trafficking in controlled drugs and restricted drugs under Parts III and IV respectively of the *Food and Drugs Act*. The decision is based on the circumstances in each case.

Other areas in which prosecutors exercise discretion are the scheduling of cases, representations as to bail, reduction of charges or counts in exchange for a plea of guilty and negotiations and representations as to sentences. In several of these areas of discretion, as in others, the police appear to play a very influential role.

The practice differs in various jurisdictions as to whether judges expect Crown counsel to speak to sentence. It is thought by some judges to be a usurpation of the judicial function; by others it is thought to be the duty of the Crown. When provision for absolute and conditional discharge came into effect in July 1972⁶ (see Appendix F.8 *Sentencing*) federal prosecutors were instructed by the Department of Justice in Ottawa to recommend absolute or conditional discharge in all cases of first offence of simple possession of cannabis where there was not a previous criminal record or a concurrent conviction for another offence. There has been some reaction from the courts, however, that they will not treat the application of absolute or conditional discharge in a particular class of cases as automatic in the absence of legislation clearly requiring it.⁷

F.8 SENTENCING

As indicated in Appendix E *Conviction Statistics for Drug Offences*, the range of possible sentences for drug offences includes fine, suspended sen-

tence, probation, imprisonment and absolute or conditional discharge. In the case of indictable offences the court has complete discretion as to the amount of the fine. Where an indictable offence is punishable by imprisonment for more than five years a fine may be imposed in addition to but not in lieu of imprisonment.¹ This is a severe limitation on judicial discretion. Its repeal was recommended by the Canadian Committee on Corrections.² A sentence to imprisonment for two years or more is served in a federal penitentiary. A sentence for less than two years is served in a penal institution under provincial jurisdiction. In the latter case the sentence may be to a common jail or to a reformatory. In Ontario and British Columbia the courts are empowered to add to a definite sentence of not less than three months but less than two years a sentence for an indeterminate period not exceeding two years less a day.³ For jurisdiction with respect to parole in such cases see Appendix K *Parole of Heroin Dependents in Canada*. A court may suspend the imposition of sentence and place a convicted person on probation.⁴ Probation may also be imposed in addition to other disposition, such as fine or imprisonment. For further details on probation see Appendix J *Probation for Heroin Dependents in Canada*. The provision for absolute and conditional discharge which came into effect in July 1972 is in the following terms:

662.1(1) Where an accused, other than a corporation, pleads guilty to or is found guilty of an offence, other than an offence for which a minimum punishment is prescribed by law or an offence punishable, in the proceedings commenced against him, by imprisonment for fourteen years or for life or by death, the court before which he appears may, if it considers it to be in the best interests of the accused and not contrary to the public interest, instead of convicting the accused, by order direct that the accused be discharged absolutely or upon the conditions prescribed in a probation order.⁵

If an accused who has been granted a conditional discharge commits any offence while on probation, including the offence of a violation of the probation order, the court that made the probation order may revoke the discharge, convict the accused of the offence to which the discharge relates and impose any sentence that could have been imposed if the accused had been convicted at the time he was discharged.⁶

Sentencing practices in drug cases are characterized by a wide disparity across Canada. Not only is this clear from reported decisions, but it is conclusively demonstrated by answers to questions which were put to judges in research conducted for the Commission. The purpose of this research was to determine judicial perceptions of the drug phenomenon.

In the summer of 1970 approximately 70 judges were interviewed.⁷ Fifteen hypothetical cases were put to the judges to determine the sentences they would give. The answers revealed a very great disparity in sentencing. The range of sentences in each case is shown in Table F.1. The total amount of imprisonment given for all the cases combined ran from a low of four years to a high of 47 years. It should be observed that to some extent this disparity reflected the difference in resources, such as probation, available

TABLE F.1
RANGE OF DISPOSITIONS IN FIFTEEN HYPOTHETICAL CASES

Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fine.....	9	6	—	2	34	18	2	2	8	5	15	—	2	—	3
Suspended sentence.....	4	2	—	—	8	4	10	3	7	1	12	—	3	—	1
Probation.....	15	12	—	2	22	3	24	4	25	5	37	4	17	—	3
Jail.....	21	29	5	28	3	29	12	24	12	30	1	23	16	6	16
Reform.....	11	6	2	13	—	6	4	8	6	10	—	24	9	2	13
Penitentiary.....	1	8	59	18	—	3	4	18	—	10	—	10	7	56	24
Probation & Jail.....	4	4	—	4	1	4	7	4	6	6	1	6	9	2	5
Additional facts.....	3	1	—	1	—	1	3	5	1	1	1	—	1	—	—
Not answered.....	1	1	3	1	1	2	3	1	4	1	2	2	5	3	4

to judges in their respective areas, but there was also marked disparity in the sentences suggested by judges in the same area.

Sophistication in judicial response increased with the experience of the judge. Complex combination sentences—for example, fines plus probation, institution plus probation—tended to be characteristic of the experienced judges.

The scale of seriousness attached to the case depended primarily on the type of drug concerned and whether the case was one of trafficking or simple possession. Drugs tended to be rated from highest to lowest in the following order: heroin, amphetamines, LSD and other hallucinogens, hashish and marijuana. Judges operating with a simple set of rules tended to make a rigid distinction between trafficking and possession. More experienced judges would draw distinctions among trafficking cases depending upon the amount of the drug, the relationship between seller and purchaser, and the motive for sale. An important secondary factor concerned the existence and length of a previous criminal record. It appeared that the record was always considered but only after an assessment had been made of the current offence. Some judges tended to minimize the significance of a record, feeling that it was their task simply to sentence for the current offence.

There has been a tendency on the part of appeal courts to be more severe in their approach to sentencing than the trial courts. There have been many cases in which prison sentences have been imposed or increased on appeal by the Crown.⁸ There have also, of course, been cases in which sentence has been reduced on appeal.⁹

NOTES

F.1 *The Constitutional Framework*

1. Section 91(27) of the Canadian Constitution (the "*British North America Act*" which is usually referred to as the "*BNA Act*") confers exclusive jurisdiction upon the Parliament of Canada to make laws in relation to matters falling within the class of subjects described as "The Criminal Law, except the Constitution of Courts of Criminal Jurisdiction, but including the Procedure in Criminal Matters."
2. *Standard Sausage Co. v. Lee* [1934] 1 D.L.R. 706, [1933] 4 D.L.R. 501; *R. v. Wakabayashi*, (1928) 3 D.L.R. 226. See also *Rex v. Perfection Creameries Ltd.* [1939] 3 D.L.R. 185, affirming the validity on the basis of the federal criminal law power, of the prohibition against adulteration of butter in the federal *Dairy Industry Act*.
3. R.S.C. 1970, c. N-1.
4. R.S.C. 1970, c. F-27. Part III of the *Food and Drugs Act* prohibits trafficking and possession for the purpose of trafficking in "controlled" drugs (barbiturates and amphetamines) and Part IV prohibits trafficking, possession for the purpose of trafficking and unauthorized simple possession of "restricted" drugs (LSD, and other strong hallucinogens—DET, DMT, STP(DOM), MDA, MDMA, and LBJ).
5. [1971] S.C.R. 5.
6. Section 91(2) of the *BNA Act* confers exclusive jurisdiction upon the Parliament of Canada to legislate in relation to matters which fall within the class of subjects described as "The Regulation of Trade and Commerce". As we shall see, the apparently unlimited scope of these words has been cut down by judicial interpretation, so that jurisdiction with respect to this subject is divided between the federal and provincial legislatures.
7. Section 91 of the *BNA Act* confers on the federal Parliament exclusive jurisdiction to make laws for the "Peace, Order and Good Government" of Canada in relation to matters not assigned to exclusive provincial jurisdiction. This is generally referred to as the "Peace, Order and Good Government" clause or the general power of Parliament. And then "for greater certainty but not so as to restrict the Generality of the foregoing", it explicitly provides that exclusive federal legislative jurisdiction shall extend to all matters coming within the classes of subjects specified in an enumerated list. The numbered paragraphs in this list are usually referred to as subsections of section 91 or as "heads" of jurisdiction. Section 92 confers exclusive jurisdiction upon the provinces to make laws in relation to matters falling within the classes of subjects specified in an enumerated list. It does not contain an introductory or general grant of power in terms comparable to those of section 91, but head 16—"Generally all Matters of a merely local or private Nature in the Province"—is often referred to as the provincial residuary power.
8. *Reference re Natural Products Marketing Act* [1936] S.C.R. 398, aff'd by [1937] A.C. 377.
9. *The Queen v. Klassen*, (1959) 20 D.R.R. (2d) 406.

10. *In re Regulation and Control of Aeronautics in Canada* [1932] A.C. 54; *Johannesson v. West St. Paul*, [1952] S.C.R. 292.
11. *In re Regulation and Control of Radio Communications*, [1932] A.C. 54. The full scope of federal jurisdiction with respect to radio and television is presently a matter of some controversy.
12. *Pronto Uranium Mines Ltd. and Algom Uranium Mines Ltd. v. Ontario Labour Relations Board* [1956] O.R. 862.
13. *Munro v. National Capital Commission*, [1966] S.C.R. 663.
14. *Fort Frances Pulp & Power Co. Ltd. v. Manitoba Free Press Co. Ltd.*, [1923] A.C. 695; *Co-operative Committee on Japanese Canadians v. A.-G. Can.*, [1947] A.C. 87; *Reference re Validity of Wartime Leasehold Regulations*, [1950] S.C.R. 124.
15. *Toronto Electric Commissioners v. Snider*, [1925] A.C. 396.
16. *A.-G. Can. v. A.-G. Ont. (Labour Conventions case)*, [1937] A.C. 326.
17. *A.-G.-B. C. v. A.-G. Can. (Natural Products Marketing Reference)* [1937] A.C. 377.
18. *Board of Commerce case*, (1922) 1 A.C. 191.
19. (1882), 7 App. Cas. 829.
20. *A.-G. Ont. v. Canada Temperance Federation* [1946] A.C. 193.
21. (1883), 9 App. Cas. 117.
22. The decision concerned the validity of the federal *Liquor License Act, 1883* (46 Vic. c. 30, as amended by 47 Vic. c. 32). The decision of the Supreme Court of Canada is set out in the Schedule to 48-49 Vic. c. 74. Four of the five judges held that the Act was *ultra vires* except insofar as it related to vessel licenses and wholesale licenses—that is, licenses which were not of a retail nature within the provinces. The fifth judge held that the Act was *ultra vires* in whole. The decision of the Privy Council holding the Act *ultra vires* is referred to in several subsequent decisions, including the following: *A.-G. Can. v. A.-G. Alta. and A.-G. B.C.* [1916] 1 A.C. 588, per Viscount Haldane at pp. 595-597; *Board of Commerce case*, (1920), 60 S.C.R. 456 per Duff J., dissenting at pp. 494-497; *Toronto Electric Commissioners v. Snider* [1925] A.C. 396 per Viscount Haldane at pp. 410-413; *The Natural Products Marketing Reference* [1936] S.C.R. 398 per Duff C. J. at pp. 409-411.
23. *A.-G. Ont. v. A.-G. Can.*, [1896] A.C. 348 (usually referred to as the "Local Prohibition" case).
24. *Reference as to the Validity of Section 5(a) of the Dairy Industry Act*, [1949] S.C.R. 1, aff'd by [1951] A.C. 179.
25. Martin J. A. in *Standard Sausage Co. Ltd. v. Lee*, *supra*; Cross J., dissenting in *Rinfret v. Pope* (1886) 12 Q.L.R. 303; Estey J. in *Reference re Validity of Section 5(a) of the Dairy Industry Act*, [1949] S.C.R. 1.
26. For example: *Rinfret v. Pope*, *supra*, in which the Quebec Court of Appeal held that public health legislation in each province, with the exception of the matters attributed to Parliament in section 92(11) of the *BNA Act*, fell within provincial jurisdiction; See also *Re Shelly*, (1913) 10 D.L.R. 666, holding regulations concerning the wrapping of bread to prevent the spread of infectious disease to fall within provincial jurisdiction.
27. See, for example, the following statement in the federal working paper, *Income, Security and Social Services*, which was presented to the fourth meeting

- of the Constitutional Conference on December 8, 1969: "Federal measures touching public health, such as pure food and drug enactments, represent a legitimate exercise of the criminal law power and, if necessary, the residuary power may be invoked to support federal legislation designed to cope with unusual hazards to public health. General legislative competence over health and welfare services, however, has been taken to reside at the provincial level."
28. *Re George Bowack* (1892) 2 B.C.R. 216; *The Canadian Pacific Navigation Co. v. The City of Vancouver* (1892) 2 B.C.R. 193; *La Municipalité du Village St. Louis du Mile End v. La Cité de Montréal* (1885) 2 M.L.R. S.C. 218.
 29. This was the assumption of the Rowell-Sirois Commission, and it was referred to without dissent in the working paper, *Income Security and Social Services*, *supra*. We have not been able to find any reported judicial decisions interpreting the scope of the word "quarantine" in section 91(11) of the *BNA Act*.
 30. *Fawcett v. A.-G. Ont.*, [1964] S.C.R. 625, aff'g [1964] 2 O.R. 399. See also *R. v. Trapnell* (1910) 22 O.L.R. 219 (Ont. C.A.); *Green v. Livermore* [1940] 22 O.R. 381.
 31. The Senate of Canada: Proceedings of the Special Committee on the Traffic in Narcotic Drugs in Canada, Queen's Printer, 1955, xix.
 32. *Criminal Code*, Part XXI. *Brusch v. The Queen* [1953] 1 S.C.R. 373; *R. v. Neil* [1957] S.C.R. 685.
 33. See *Narcotic Addict Act* of New Brunswick, 1961-62 Stat N.B. c. 25.
 34. Section 543.
 35. Section 542.
 36. See *R. v. Trapnell* (1910), 22 O.L.R. 219 (Ont. C.A.), per Meredith J. A. at p. 222.
 37. Laskin, *Canadian Constitutional Law*, Revised 3rd ed. 1969, p. 852.
 38. Section 745.
 39. *Goodyear Tire and Rubber Co. of Canada Ltd. et al. v. The Queen* [1956] S.C.R. 303.
 40. *A.-G. B.C. v. Smith*, [1967] S.C.R. 702, upholding the validity of the *Juvenile Delinquents Act*, mainly on the ground that it was prevention of crime.
 41. *Robinson v. California*, 370 U.S. 660.
 42. Judicial decisions have affirmed the validity of the delegation by Parliament of administrative power to a provincial administrative authority, as distinct from the delegation of legislative power to the provincial legislature itself, which would be invalid. *P.E.I. Potato Marketing Board v. H. B. Willis Inc. and A.-G. Can.* [1952] 2 S.C.R. 392; *Coughlin v. Ontario Highway Transport Board* [1968] S.C.R. 569. The same principle would apply to delegation by a provincial legislature to a federal administrative authority.
 43. *A.-G. Can. v. A.-G. Ont. (Labour Conventions case)*, [1937] A.C. 326.
 44. In certain fields of activity, such as highway traffic, the courts have recognized the valid co-existence of somewhat similar or overlapping federal and provincial penal provisions. The federal provisions are enacted in virtue of the criminal law power, and the provincial provisions in virtue of provincial jurisdiction to regulate highway traffic. The courts would appear to be prepared to recognize the valid co-existence of virtually identical provisions so long as compliance with one does not involve violation of the other. See *Mann v. The Queen* [1966] S.C.R. 238.

45. See *Liquor Prohibition* case, *supra*; also *A.-G. Man. v. Manitoba Licence Holders' Association*, [1902] A.C. 73. See also *R. v. Nat Bell Liquors Ltd.*, [1922] 2 A.C. 128.
46. *Switzman v. Elbling and A.-G. Que.*, [1957] S.C.R. 285, at pp. 305–306, 324.
47. With reference to gambling: *Rex v. Lamontagne*, [1945] O.R. 606; *Johnson v. A.-G. Alta.* [1954] S.C.R. 127; *Deware v. The Queen*, [1954] S.C.R. 182; *Regent Vending Machines Ltd. v. Alberta Vending Machines Ltd. and A.-G. Alta.*, (1956) 6 D.L.R. 548; with reference to censorship: *Regina v. Board of Cinema Censors of Quebec, ex parte Montreal Newsdealers Supply Co.*, (1968), 69 D.L.R. (2d) 512; with reference to sexual morality: *Rex v. Hayduk*, [1938] O.R. 653. In most of these cases there was federal legislation touching the subject matter, but the weight of judicial opinion that flows from them is that the provinces do not have a jurisdiction to suppress conduct in the interest of public morality.
48. Cf. *Regina v. Snyder and Fletcher*, (1967) 61 W.W.R. 112 and 576 (Alta. C.A.) and *Regina v. Simpson, Mack and Lewis*, (1969) 1 D.L.R. (3rd) 597, [1969] 3 C.C.C. 101 (B.C.C.A.), in which the Courts of Appeal of Alberta and British Columbia came to different conclusions concerning the validity of provisions in the provincial Health Acts prohibiting the simple possession of LSD at a time when it was not prohibited by federal law. The Alberta provision was held to be valid as legislation in relation to a matter of public health, and the British Columbia provision was held to be invalid as legislation in relation to a matter of criminal law. Another example of a provincial prohibition of drug-related conduct as an aspect of the protection of health is the provision in the *Alberta Public Health Act* (to which reference is made elsewhere in this report) prohibiting the distribution and use of volatile substances for purposes of intoxication. As far as we are able to ascertain the validity of this provision has not yet been judicially determined.
49. *Rex v. Osjorm* [1927] 2 W.W.R. 703 (Alta. C.A.)
50. For other cases in which, as in *Rex v. Osjorm*, the primary purpose of the legislation was held to fall within provincial jurisdiction although it could be said to be also advancing a notion of public morality: *Regina v. Wason* (1890), 17 O.A.R. 221 at 241–242; *Regina v. Fink* [1967] 2 O.R. 132 at 135–137.

F.3 The Law with Respect to the Offences of Simple Possession, Trafficking, Possession for the Purpose of Trafficking, Importing and Cultivation

1. R.S.C. 1970, c. N-1.
2. R.S.C. 1970, c. F-27.
3. *R. v. McLeod*, (1955), 21 C.R. 137 (B.C.C.A.).
4. *R. v. Ling*, (1954), 19 C.R. 1973; 109 C.C.C. 306 (Alta. S.C.); but compare *Regina v. Quigley*, (1955), 20 C.R. 152; 111 C.C.C. 81 (Alta. C.A.), where it was held that the only reasonable conclusion was that the amount found was the residue of a larger amount.
5. As to the necessity of signature on the certificate: *R. v. Richardson*, (1969) 68 W.W.R. 501 (B.C.C.A.); *R. v. Blau*, 10 C.R.N.S. 65 (B.C. Prov. Ct.); *R. v. Clark*, (1969) 70 W.W.R. 399 (B.C.C.A.); as to the accused's right

- to notice: *A.-G. Can. v. Ross*, 15 C.R.N.S. 71 (Que. C.A.); *R. v. Bellrose*, 15 C.R.N.S. 179; *R. v. Lewis*, 6 C.C.C. (2d) 516 (Ont. C.A.); *R. v. Henri*, 9 C.C.C. (2d) 52; as to proof required of delivery to analyst: *R. v. Dawdy and Lamoureux*, [1971] 3 O.R. 282 (Ont. C.A.); as to what the certificate must state in a case of cultivation: *R. v. Busby*, 7 C.C.C. (2d) 234 (Yukon Territory Court of Appeal).
6. *R. v. Beaver*, [1957] S.C.R. 531, 118 C.C.C. 129; *R. v. Peterson*, 1 C.C.C. (2d) 197 (Alta. C.A.). See also *R. v. Burgess*, [1970] 3 C.C.C. 268 (Ont. C.A.) where it was held that it is sufficient that the accused know that he is in possession of a prohibited drug although he may not know which prohibited drug he has, and the case of *R. v. Custeau*, 6 C.C.C. (2d) 179 (Ont. C.A.) to similar effect in a trafficking case involving the sale of LSD under the mistaken belief that it was mescaline, a drug on Schedule F of the *Food and Drug Regulations* whose sale without prescription is prohibited. See also *R. v. Blondin*, 2 C.C.C. (2d) 118 (B.C.C.A.), a case involving importing, in which it was held that there is sufficient *mens rea* if the accused is found to have "wilfully shut his eyes to what it was" if there can be inferred from this fact that he "suspected that it might be a narcotic".
 7. *Narcotic Control Act*, s. 7; *Food and Drugs Act*, ss. 36 and 44.
 8. *R. v. Colvin and Gladhue*, [1943] 1 D.L.R. 20, 78 C.C.C. 282 (B.C.C.A.); *R. v. Lavier*, 129 C.C.C. 297 (Sask. C.A.); *R. v. Harvey*, 7 C.R.N.S. 183 (N.B.C.A.); *R. v. Marshall*, (1969), 3 C.C.C. 149 (Alta. C.A.); *R. v. Dick and Malley*, (1969) 68 W.W.R. 437 (B.C.C.A.); *R. v. Caldwell*, 19 C.R.N.S. 293 (Alta. C.A.); *R. v. Brady*, *R. v. Maloney*, *R. v. McLeod*, 19 C.R.N.S. 328 (Sask. Dist. Ct.); but see *R. v. Bourne*, (1970) 71 W.W.R. 385 (B.C.C.A.), following the judgment of Davey J.A. in *R. v. Bunyon*, 110 C.C.C. 119 (B.C.C.A.) that where there is not sufficient control to meet the test of joint possession under section 3(f)(b) of the *Criminal Code*, the accused may be found guilty of having aided and abetted the offence of possession within the meaning of Section 21(1) of the *Criminal Code*.
 9. Section 2. For a conviction of offering: *R. v. Chernecki*, 4 C.C.C. (2d) 556 (B.C.C.A.).
 10. Sections 33 and 40.
 11. Section 2.
 12. *R. v. Macdonald*; *R. v. Vickers*, (1963) 43 W.W.R. 238, (B.C.C.A.). See also *R. v. Wells*, [1963] 2 C.C.C. 279, in which the accused was convicted of trafficking for her aid to a distributor who actually passed the drugs to the buyers. She drew up a list of potential buyers, received their money, and checked their names off the list as they received their purchase.
 13. *R. v. Brown*, (1953-54), 17 C.R. 257 (B.C.C.A.).
 14. *R. v. Madigan*, [1970] 1 C.C.C. 354 (Ont. C.A.); see also *R. v. Dyer*, 5 C.C.C. (2d) 376 (B.C.C.A.), which held that a buyer of a narcotic was not an accomplice of the trafficker, and accordingly her evidence did not require corroboration. But compare *R. v. Poitras*, 6 C.C.C. (2d) 559 (Man. C.A.), in which the accused, who claimed to be acting as agent for the purchaser, was held to have been a seller or trafficker.
 15. *R. v. MacDonald*; *R. v. Harrington and Scosky*, (1964), 41 C.R. 75, (1963) 43 W.W.R. 337, [1964] 1 C.C.C. 189 (B.C.C.A.); *R. v. Cushman*, 5 C.R.N.S. 359 (B.C.C.A.); *R. v. Pappin*, 12 C.R.N.S. 287 (Ont. C.A.), Cf. *R. v. Young*, 2 C.C.C. 560 (B.C.C.A.), where transportation for the benefit of the accused, his wife and a married couple who were friends was held to go

- beyond transportation for one's own use. The accused was convicted of possession for the purpose of trafficking. See also *R. v. Weselak*, 9 C.C.C. (2d) 194, where accused also transported for others as well as his own use.
16. *R. v. MacFadden*, 5 C.C.C. (2d) 204 (N.B.C.A.).
 17. *Narcotic Control Act*, s. 4; *Food and Drugs Act*, ss. 34 and 42.
 18. *Narcotic Control Act*, s. 8; *Food and Drugs Act*, ss. 35 and 43.
 19. See *R. v. Wilson*, (1954) 11 W.W.R. (N.S.) 282 (B.C.C.A.), but compare with *R. v. Macdonald*, *R. v. Harrington and Scosky*, (1963) 43 W.W.R. 337 (B.C.C.A.). Other circumstantial evidence most commonly relied on are exhibits suggesting sale or distribution, such as containers, scales and measuring spoons, lists of names and telephone numbers, large amounts of cash in small denominations, and the like; and evidence of the accused's movements suggestive of contact for purposes other than his regular employment.
 20. See *R. v. Sharpe*, [1961] O.W.N. 261, 131 C.C.C. 75 (Ont. C.A.) a case under the *Opium and Narcotic Drug Act*, the predecessor of the *Narcotic Control Act*.
 21. Section 2(f).
 22. [1968] 2 C.C.C. 183 (B.C.C.A.); see also *R. v. Cappello*, 122 C.C.C. 342 (B.C.C.A.), and *R. v. Hupe, Forsyth and Patterson*, 122 C.C.C. 346 (B.C.C.A.).
 23. [1970] 3 C.C.C. 1 (B.C.C.A.).
 24. 3 C.C.C. (2d) 354 (S.C.C.).
 25. Formerly Section 224A(1).
 26. *In re Winship*, 397 U.S. 358 (1970).
 27. *Leary v. United States*, 395 U.S. 6 (1968) at p. 36: "... a criminal statutory presumption must be regarded as 'irrational' or 'arbitrary', and hence unconstitutional, unless it can at least be said with substantial assurance that the presumed fact is more likely than not to flow from the proved fact on which it is made to depend."
 28. *R. v. Geesman*, 13 C.R.N.S. 240 (Que. Ct. Sess.), where it was held to be immaterial that the drug was intended for re-shipment to the United States. See also *R. v. Dunlop*, 19 C.R.N.S. 43 (N.B. County Ct.).
 29. *Regina v. Busby*, 7 C.C.C. (2d) 234 (Yukon Territory C.A.); *R. v. Fahlman* (1968), 5 C.R.N.S. 192, 67 W.W.R. 109, aff'd on other grounds, 8 C.R.N.S. 245, 70 W.W.R. (B.C.C.A.).

F.4 Applicable Provisions of the Criminal Code

1. R.S.C. 1970, c. C-34.
2. Section 423.
3. Section 320.
4. Section 324.
5. Section 326.
6. Section 213.
7. Section 229.

8. Section 230.
9. Section 195.
10. Section 251.
11. Section 234.
12. Section 422.
13. See *R. v. McLeod and Georgia Straight Publishing Ltd.*, 12 C.R.N.S. 193 (B.C.C.A.), in which a newspaper was convicted of counselling persons to cultivate marijuana.
14. Section 22.
15. Section 21.

F.5 Juvenile Delinquency Legislation

1. R.S.C. 1970, c. J-3, s. 2(1). Drug-related conduct that is not the subject of specific legal prohibition is not likely to bring a person within the definition of juvenile delinquent. In *R. v. Pandiak*, (1967) 61 W.W.R. 207 (Alberta Supreme Court, Kirby J.), it was held that glue sniffing, which was not the subject of any legal prohibition, did not come within the words "any similar form of vice" in the definition of juvenile delinquent, and that accordingly a person who had aided and abetted a child to engage in glue sniffing had not contributed to his becoming a juvenile delinquent within the meaning of section 33 of the Act. (The distribution and use of volatile solvents for purposes of intoxication have since been prohibited in Alberta.)
2. Section 9. For a discussion of the considerations governing the exercise of discretion to transfer a case of juvenile delinquency to the regular courts see Graham Parker, (1970) 48 *Can. Bar Rev.* 336.
3. See, for example, *R. v. Olafson* (1967), 68 W.W.R. 525 (B.C.C.A.), where it was held that a youth who was adjudged to be a juvenile delinquent by reason of unlawful possession of a prohibited drug and was transferred to the adult court and charged with unlawful possession under the *Narcotic Control Act*, could not raise the plea of *autrefois acquit*. See also *R. v. Gray* (1971) 3 W.W.R. (B.C.S.C.) where the defendant was accused of delinquency under the *Juvenile Delinquents Act* by reason of possession of marijuana. The Crown applied to have the defendant tried in the ordinary courts but that application was refused. The defendant then went before a juvenile court and pleaded guilty to the delinquency and was placed on probation. When he broke the terms of his probation he was once again brought before a juvenile court, whereupon the Crown applied, as before, that he be retried in the ordinary courts for the original delinquency, this time as an offense under the *Narcotic Control Act*. The juvenile court judge granted the application, and on appeal this was held to be a proper course under the *Juvenile Delinquents Act*. The court followed the *Olafson* decision.
4. See, for example, *R. v. Martin*, 9 C.R.N.S. 147 (Man. Q.B.), where a youth of sixteen, charged with trafficking in LSD, was ordered transferred from the juvenile court to the adult court, but the latter held that it was not in the interest of the juvenile or society to subject him to trial upon indictment in the adult court.

F.6 Special Methods of Enforcement

1. Section 10(1).
2. Sections 37 and 45.
3. *Narcotic Control Act*, s. 10(2).
4. Section 10(3).
5. Submission of R.C.M. Police to the Commission.
6. Section 10(1)(b).
7. Section 37(1)(a) and 45.
8. Section 10(1)(c).
9. Sections 37(1)(c) and 45.
10. Section 11.
11. *Narcotic Control Act*, s. 10(4).
12. [1950] 2 D.L.R. 265 at 270 (Ont. C.A.).
13. *R. v. Larlham*, [1971] 4 W.W.R. 304 (B.C.C.A.).
14. For example: *R. v. Verge*, [1971] 4 W.W.R. 116 (B.C.C.A.); *R. v. Madigan* [1970] 1 C.C.C. 354 (Ont. C.A.); *R. v. Coughlin, ex parte Evans*, [1970] 3 C.C.C. 61 (Alta. S.C.); *R. v. Shipley* [1970] 3 C.C.C. 398 (Ont. Co. Ct.); *R. v. Omerod* (1969), 6 C.R.N.S. 37 (Ont. C.A.); *R. v. Larson*, 6 C.C.C. (2d) 145 (B.C.C.A.); *R. v. Lazar*, 9 C.C.C. (2d) 3 (Ont. C.A.).
15. See *R. v. Omerod*, (1969), 6 C.R.N.S. 37 (Ont. C.A.).
16. In *R. v. Coughlin, ex parte Evans*, [1970] 3 C.C.C. 61 (Alta. S.C.) a person sought unsuccessfully to bring a prosecution against a police constable for aiding and abetting trafficking. He had been convicted of trafficking in marijuana on the evidence of the constable, who, acting as an undercover agent, had purchased the marijuana from him. The court held in effect that the constable was in no different position than any other purchaser, and that since purchase does not constitute trafficking it would defeat the purpose of the law to hold that it could amount to an aiding and abetting of trafficking. In effect the court attached no importance to the particular purpose for which the purchase had been made.
17. For a discussion, without expression of opinion: *R. v. Omerod*, 6 C.R.N.S. 37 at 44-66; for obiter dicta that the defence does not exist in Canadian law: *Lemieux v. the Queen*, [1968] 1 C.C.C. 187 at 190; *R. v. Chernecki*, 4 C.C.C. (2d) 556 at 559-560.
18. In *R. v. Shipley*, [1970] 3 C.C.C. 398 (Ont. Co. Ct.), a case in which an undercover agent had persuaded a young person to obtain drugs for him, a judge of the County Court ordered a stay of prosecution on the ground that the court had an inherent power to prevent abuse of process. The court relied on the decision of the Ontario Court of Appeal in *R. v. Osborn* 5 C.R.N.S. 183. There the Court of Appeal had exercised an inherent jurisdiction to prevent a person from being prosecuted for an offence very similar to one of which he had been earlier acquitted. The decision of the Court of Appeal was unanimously reversed by the Supreme Court of Canada (12 C.R.N.S. 1), and the conviction restored. It is not clear from the opinions rendered in the Supreme Court whether the judges were of the opinion that there was no inherent jurisdiction to prevent abuse of criminal process or whether they simply felt that the facts did not show oppression in the par-

ticular case. At the very least, the judgment in *Osborn* leaves considerable doubt as to whether *Shipley* can stand as good law. But cf. *R. v. Kowerchuk*, 3 C.C.C. (2d) 291 (Prov. Ct.), which followed the view adopted by the Ontario Court of Appeal in *Osborn* as to an inherent jurisdiction to prevent abuse of process and ordered a stay of proceedings, although the case was not one of police instigation of an offence; also *R. v. MacDonald*, 15 C.R.N.S. 122 (B.C. Prov. Ct.) which dismissed a charge of trafficking on the ground of abuse of process because of instigation by an undercover agent.

19. *R. v. Price*, 12 C.R.N.S. 131 (Ont. C.A.).
20. *Sorrells v. United States*, 287 U.S. 435 (1932).
21. Canada, Canadian Committee on Corrections, *Towards Unity: Criminal Justice and Corrections*, (Ottawa: Queen's Printer, 1969), (The 'Ouimet Report'), p. 79.

F.7 Prosecution in Drug Cases

1. *BNA Act*, s. 92(14).
2. The importance of the distinction is no longer so much one of procedure (jury trial) or jurisdiction (superior court as opposed to magistrates). A very high proportion of cases involving indictable offences in Canada are tried by magistrates, either as an aspect of their absolute jurisdiction or by consent of the accused. See *Criminal Code*, s. 484; Hogarth, *Sentencing as a Human Process*, University of Toronto Press, 1971, p. 35.
3. R.S.C. 1970, c. I-1.
4. These requirements are often applied, however, in cases in which there is an option to proceed by indictment or summary conviction, since the offence is in fact an indictable offence, but the practice varies.
5. *R. v. Smythe*, 3 C.C.C. (2d) 366 (S.C.C.).
6. 1972 Stat. Can., c. 13, s. 57.
7. See, for example, *R. v. Derkson*, 9 C.C.C. (2d) 97 (B.C. Prov. Ct.).

F.8 Sentencing

1. *Criminal Code*, s. 646(2).
2. *Report of Canadian Committee on Corrections*, p. 199.
3. *Prisons and Reformatories Act*, R.S.C. 1970, c. P-21, ss. 44 and 150. In the case of females in Ontario the definite portion of the sentence is not required (s. 55).
4. *Criminal Code*, s. 663.
5. *Ibid.*, s. 662.1.
6. *Ibid.*, s. 662.1(4).
7. These interviews were conducted by Professor John Hogarth, who directed the Commission's project of empirical research into various aspects of law enforcement. They were confined to judges outside Quebec. A separate study was made of judicial attitudes of judges in Quebec, but it did not yield results on disparity in sentencing.

8. See, for example: *R. v. McNicol*, 5 C.R.N.S. 242 (Man. C.A.); *R. v. Lehmann*, [1968] 2 C.C.C. 198 (Alta. C.A.); *R. v. Adelman*, [1968] 3 C.C.C. 311 (B.C.C.A.); *R. v. Morrison*, [1970] 2 C.C.C. 190 (Ont. C.A.); *R. v. O'Connel*, [1970] 4 C.C.C. 162 (P.E.I.C.A.); *R. v. Cuzner*, [1970] 5 C.C.C. 187 (Ont. C.A.); *R. v. Dejong*, 1 C.C.C. (2d) 235 (Sask. C.A.); *R. v. Doyle and others*, 2 C.C.C. (2d) 82 (Alta. C.A.).
9. See, for example: *R. v. Vautour* [1970] 1 C.C.C. 324 (N.B.C.A.); *R. v. Doxen*, [1970] 3 C.C.C. 431 (Ont. C.A.).

Opiate Maintenance

G.1 METHADONE CONTROL PROGRAM OF THE GOVERNMENT OF CANADA

Early in 1972 the Government of Canada decided to subject the use of methadone to special controls. Physicians would require special authorization from the Minister of National Health and Welfare to prescribe or administer methadone. This decision resulted from concern over the dangers of an unregulated use of methadone, and it was influenced by the recommendations of a Special Joint Committee on Methadone of the Food and Drug Directorate of the Department of National Health and Welfare and the Canadian Medical Association, as well as by the recommendations of the Commission in its *Treatment Report*.

The Special Joint Committee identified certain abuses in the use of methadone in the following terms:

Reports of misuse and abuse of methadone have already come to the attention of the Department of National Health and Welfare. These include prescribing excessive and sometimes escalating doses of methadone for individual patients and issuing prescriptions for large quantities at one time; treatment of large groups of addicts by individual physicians without the facilities for proper diagnosis, management and follow-up; 'on-and-off' prescription of methadone; inappropriate use of injectable solution; simultaneous prescription of methadone and other narcotics; use of methadone by non-addicted persons and multiple drug users; addicts obtaining prescriptions simultaneously from different sources; and diversion of methadone to the illicit drug market. Several deaths have occurred, due either to methadone over-dosage in non-dependent casual users, or to potentiation of the effects of other depressive drugs, especially barbiturates.¹

The Commission's *Treatment Report*, submitted in January 1972, spoke of abuses in the following terms:

Unquestionably, the greatest illicit use occurs in the prescription of methadone by private physicians who have no facilities for laboratory moni-

toring or social follow-up, who prescribe more than two days' supply for self-medication and for 'self-withdrawal'... and who cannot be certain that they are the sole source of supply for individual patients.

Study of prescriptions across Canada shows evidence of serious abuse of this method of obtaining methadone: private physicians carrying large caseloads of methadone patients and individual patients receiving continuing supply from many physicians. We have had other evidence of some physicians being extremely careless in determining the indication for the prescribing of methadone. It is highly probable that under these conditions much of the privately prescribed methadone reaches the illegal market and is contributing to a growing population of primary methadone addicts.²

From its field survey in May 1972 the Commission derived the distinct impression that the availability of illicit methadone had played a significant role in the increase of opiate use. In Montreal, Halifax and other areas, indiscriminate prescribing created a unique opiate dependency phenomenon and a natural bridge to heroin.

Imports of methadone had been rising markedly in recent years, as indicated by the following figures: 1966 – 2.7 kg; 1967 – 5.1 kg; 1968 – 9.7 kg; 1969 – 11.7 kg; 1970 – 27.1 kg; 1971 – 40.6 kg.³

The Special Joint Committee of the Food and Drug Directorate and the Canadian Medical Association made the following observation concerning the reason for the increase in imports:

Only about one third of this increase can be accounted for by use in controlled clinics such as the Narcotic Addiction Foundation of British Columbia and the Addiction Research Foundation of Ontario. The remainder results from increased prescribing of methadone by practising physicians.⁴

The estimated *consumption* of methadone for the years 1961 to 1971 (stated in pure drug figures) was as follows: 1961 – 5.562 kg; 1962 – 3.324 kg; 1963 – 3.571 kg; 1964 – 4.115 kg; 1965 – 4.175 kg; 1966 – 4.353 kg; 1967 – 6.216 kg; 1968 – 9.417 kg; 1969 – 13.053 kg; 1970 – 20.967 kg; 1971 – 40.158 kg.⁵

In recent years there had been an increase in "prescription shopping" or "double doctoring" involving methadone. This practice, in which the patient obtains the drug or a prescription from more than one doctor, is prohibited by section 3(3) of the *Narcotic Control Regulations*. In 1970 there were four convictions for this offence involving methadone, and in 1971 there were 43. For the first half of 1972 there were 29, suggesting a further increase for the year as a whole. Almost all of these convictions were in British Columbia and Quebec. There had also been a marked increase in the total number of other offences involving methadone (simple possession, trafficking, and possession for the purpose of trafficking), as indicated by the following figures: 1970 – 10; 1971 – 40; first half of 1972 – 20.⁶

The essential emphasis in the report of the Special Joint Committee is contained in the following passages:

To minimize this risk and the likelihood of ineffective care, methadone maintenance should preferably be undertaken, for the present, in structured programs such as those offered by the Narcotic Addiction Foundation of British Columbia and the Addiction Research Foundation of Ontario. . . .

The Committee believes that individual practitioners who are not well versed in methadone maintenance techniques and have no access to the necessary laboratory and other control facilities and rehabilitation services, should not attempt to take on the responsibility of treating narcotic addicts. Whenever possible, narcotic addicts seeking medical treatment should be referred to clinics that are equipped for this type of treatment. The physician can of course assist in the treatment of narcotic addicts by cooperating or affiliating with established methadone maintenance programs.

The Committee outlined certain guiding principles for the case where it is necessary to treat a narcotic addict with methadone outside an established methadone maintenance program. These include consultation with experienced colleagues, care in determining that there is a true and long-standing case of opiate dependence before methadone therapy is initiated, the administration of methadone in oral form and ingestion under the supervision of the physician, nurse or pharmacist, and the keeping of proper records. The report also suggested certain other principles of good medical practice for the use of methadone in withdrawal and maintenance. In effect, the Committee expressed a very definite preference for confining the use of methadone maintenance as much as possible to organized programs in properly equipped clinics, but it recognized that it would probably be necessary for private physicians to engage in this form of treatment, and it sought to assist them by guidelines on good medical practice.

The Commission, in its recommendations, was somewhat more insistent on the necessity of having methadone maintenance controlled through properly equipped clinics. It also recognized that it might be necessary for private physicians and even paramedical personnel to be authorized to engage in methadone maintenance in certain areas, but it considered that they should only be permitted to do so under the supervision of a recognized clinic. In effect, the Commission recommended that the right to engage in methadone maintenance be confined to specialized clinics and to medical personnel affiliated with them and acting under their general responsibility and supervision. The Commission's recommendations on this point are contained in the following passages:

Methadone maintenance programs should be developed only—and methadone be available only—in specialized clinics, preferably hospital-based, as part of an overall maintenance program serving an area. The prescription of methadone by private physicians should be terminated except where there is a special arrangement with the clinic, and then under continuing close supervision by the clinic. This exception should be permitted

only where auxiliary facilities, including counselling services, laboratory monitoring, and careful control including monitoring by the Food and Drug Directorate may be ensured.

In special cases where the patient cannot reasonably have regular access to a specialized clinic or authorized physician because of geographical location, private physicians, pharmacists, public health nurses or other suitably qualified persons may be authorized to administer methadone. In such cases, however, the person specially authorized to administer methadone should perform the necessary counselling and monitoring services and should make regular reports to the specialized clinic which has assumed and retained overall responsibility for the patient's maintenance program. Alteration of the dose of methadone should be subject to prior approval by the specialized clinic. This exceptional procedure of administration should be authorized only after the patient's adaptation to methadone has been clearly established.⁷

In February 1972 the Honourable John Munro, Minister of National Health and Welfare, announced a new policy of methadone control. The Minister said:

During the last year, staff of my department have received many reports of misuse and abuse of methadone. As a result of concern over misuse of this drug, the former Food and Drug Directorate of my department and the Canadian Medical Association established a joint committee in 1970, to investigate the proper place of methadone in the care of the narcotic addicts. Concern about the abuse of methadone also was raised by the Le Dain Commission in its final report on Treatment, which was submitted to the Government a few weeks ago.

As a result of the recommendations of the joint FDD-CMA Committee and of the Le Dain Commission, I have decided to restrict the availability of methadone in the following way: Physicians will be permitted to prescribe methadone only after they are authorized to do so by the Minister of National Health and Welfare. Those so authorized will be considered to be qualified by reason of expertise and the availability of necessary facilities and ancillary services to utilize methadone effectively in the treatment of heroin abuse.

In line with the recommendations of the Le Dain Commission, authorized physicians will be required to be associated with a specialized clinic. Requests for authorization will be considered by an expert advisory committee to be appointed by me in cooperation with the medical profession.⁸

By letter dated April 19, 1972 the Health Protection Branch of the Department of National Health and Welfare advised all physicians registered to practise medicine in Canada that regulations were being prepared to implement the new policy of methadone control effective June 1, 1972, and that practitioners wishing to use methadone should apply for authorization. To facilitate such application the letter enclosed a document entitled "Methadone Control Program—Guidelines for Establishing Affiliation with Specialized Treatment Units and Applying for Authorization to Use Methadone".

The Guidelines reaffirmed that as a result of the recommendations of the Special Joint Committee and of the Commission the Minister had decided to restrict the use of methadone to "authorized physicians, associated with a specialized clinic or treatment unit, who are considered to be qualified by reason of expertise and the availability of the necessary facilities and ancillary services to utilize the drug effectively and safely in the care of heroin addicts".⁹ Requests for authorization to use methadone would be considered by an expert advisory committee appointed by the Minister in cooperation with the medical profession. Physicians would be granted temporary authorizations to give them sufficient time to establish an affiliation with an accredited specialized treatment unit.

The Guidelines indicated the kind of information that should be furnished with an application for authorization. Three kinds of application were contemplated: an application for accreditation by a specialized clinic or treatment unit; an application for authorization by a physician affiliated with such an accredited clinic or treatment unit; and an application for temporary authorization by a physician who had not yet established such affiliation. To be accredited, a specialized clinic or treatment unit was to submit certain information, including its treatment protocol. Affiliated physicians (of whom there were to be two classes—Clinic Associates and Regional Associates) would be required to undertake to conform to the protocol of the clinic or treatment unit.

The Guidelines indicated the following basic requirements for an accredited clinic or treatment unit:

- (1) Qualified and experienced medical, psychiatric and social services and necessary support staff;
- (2) Adequate facilities for supervised collection, and regular testing of urine for detection of narcotics and other drugs of abuse;
- (3) Well established controls for dispensing methadone and supervising its use in order to prevent diversion to illegal channels and misuse of the drug;
- (4) Established policies for diagnosis, selection of patients, treatment, follow-up and rehabilitation, including the keeping of appropriate records and evaluation of program results.¹⁰

The new *Narcotic Control Regulations* with respect to methadone were adopted on May 16, 1972, to take effect on June 1, 1972.¹¹ They provide that no practitioner shall administer, prescribe, give, sell or furnish methadone to any person or animal unless he has been authorized to do so by the Minister.¹² Neither a licensed dealer nor a pharmacist may supply methadone to a physician who has not been so authorized nor may they supply it to a hospital upon the order of an unauthorized physician.¹³ A pharmacist may not fill a prescription for methadone unless it has been issued by a physician who has been authorized by the Minister.¹⁴

To permit physicians to obtain supplies of methadone and prescribe it after June 1, 1972, full implementation of the methadone control program guidelines was postponed until November 1, 1972. On June 1, 1972 any physician who had prescribed methadone in the past was authorized to continue to use it on a temporary basis until October 31, 1972, unless records kept by the Bureau of Dangerous Drugs revealed a prior misuse of the drug by a practitioner. The Health Protection Branch came to a decision on an application for authorization after consulting the Canadian Medical Directory, the Bureau of Dangerous Drugs for record of possible prescribing abuse, and, in most cases, advice was also sought from one or more relevant provincial bodies, such as Colleges of Physicians and Surgeons, provincial authorities involved in the drug abuse field, or recognized established treatment clinics. There were six classes of temporary authorization: an authorization to use methadone in the treatment of narcotic dependence in both maintenance and withdrawal therapy; an authorization to use methadone solely in the management of narcotic withdrawal; an authorization for the use of methadone solely as an analgesic agent in non-addicted persons; authorization for the use of methadone solely as an antitussive agent in non-addicted persons; an authorization for the use of methadone by dentists as an analgesic agent; and an authorization for the use of methadone by veterinarians.

The practitioner, dentist or veterinarian was temporarily authorized to "prescribe, administer, give, sell or furnish methadone" for the purpose indicated and upon certain conditions. In the case of authorization to use it in the general treatment of narcotic dependence or in withdrawal therapy only, the temporary authorization required monthly reporting on the particulars of the use of methadone, as well as a summary progress report on all patients who had received methadone or for whom the drug had been prescribed during the interim summer period.

As of August 28, 1972 there were 657 physicians in Canada with general authorization to use methadone in the management of narcotic dependence (that is, in withdrawal and in maintenance) and 65 physicians authorized to use it in the management of withdrawal symptoms only.¹⁵ An additional 85 were authorized to use methadone under the other categories as medical practitioners (analgesic and antitussive), dentists (analgesic) or veterinarians. The number of physicians having a general authorization to use methadone in the management of narcotic dependence or an authorization to use it in the management of withdrawal only were distributed by province as of August 28, 1972 as follows: British Columbia—383; Alberta—33; Saskatchewan—7; Manitoba—20; Ontario—168; Quebec—75; New Brunswick—1; Nova Scotia—33; Yukon and Northwest Territories—2; Newfoundland and Prince Edward Island—0. Between August 28, 1972 and October 31, 1972 some authorizations had been withdrawn by mutual agreement between the Health Protection Branch and the practitioner and some new authorizations had been granted.

Authorizations to use methadone expired on October 31, 1972. Any practitioner wishing to use methadone after that date was required to apply for authorization or for renewal of authorization. Applications for authorization or renewal of authorization to use methadone after October 31, 1972 were considered by the Health Protection Branch with the assistance of a Methadone Advisory Committee.¹⁶ Two general categories of authorization were issued for the use of methadone in the treatment of narcotic dependence effective November 1st, 1972: authorization to practitioners affiliated with a methadone treatment program or unit; and a temporary authorization to private practitioners without such an affiliation. A temporary authorization expires at the end of October 1973, at which time the physician's authority to use methadone will be reviewed.

The requirements for authorization of physicians who are affiliated with a methadone treatment unit or program are as follows. The methadone treatment unit or program must file its proposed protocol or protocols with the Department. The general protocol is "a detailed statement of the policies, standards and procedures" that will be used in the proposed methadone treatment program, with reference to the following matters: objectives, criteria for diagnosis and selection of patients, admission evaluation, methadone treatment procedures and rehabilitation program (including the methods used for dispensing, prescribing and supervising the administration and use of methadone "in order to minimize its misuse and abuse"), and evaluation of program results. Special protocols must be submitted by methadone treatment programs "wishing to use methadone either in patients less than 18 years of age or under special conditions requiring more elaborate cautions than those that might be provided in a General Protocol". Such protocols must describe "in detail the plan for using the drug under restricted conditions and maintaining appropriate safeguards". A statement of affiliation and an application for authorization to use methadone must be filed by the physician. In the statement of affiliation the physician agrees to conform to the policy guidelines and protocol(s) filed by the methadone treatment unit program and acknowledges that his authorization to use methadone will cease to be effective upon termination of his affiliation with the program.

The precise criteria for determining whether the protocols of methadone treatment units or programs are acceptable are not too clear. The matters to which the Department attaches importance are suggested by the information required in the application for filing protocols, but the Department does not appear to have laid down clearly defined minimum requirements for approval. It has called for certain information on which to base the decision as to approval. It is not clear what role, if any, as a basis for decision, is to be played by the "Guidelines for Establishing Affiliation with Specialized Treatment Units and Applying for Authorization to Use Methadone", which were circulated to physicians in the spring of 1972. These were mainly concerned with indicating the kind of information that must be furnished, but they did contain certain statements of general

principle which suggested criteria for decision. For example, the application for filing protocols, for purposes of authorization after October 31, 1972, calls for an indication of "the laboratory facilities in which urinalysis will be performed". A reasonable implication of this requirement is that satisfactory facilities of this kind will be a condition of approval, but this is not explicit. The "Guidelines" lay it down as a basic requirement of specialized clinics or treatment units, for purposes of affiliation, that they have "adequate facilities for supervised collection, and regular testing of urine for detection of narcotics and other drugs of abuse".¹⁷ Under the heading of "Admission Evaluation", in the information required in treatment unit protocols, the "Guidelines" state: "The evaluation should include an assessment of the degree of dependence and a determination of the drug or drugs of abuse. The protocol should provide for laboratory confirmation by checking and maintaining surveillance of the presence of drugs of abuse in urine sample."¹⁸ Thus the "Guidelines" clearly indicate the requirement of adequate laboratory facilities for urinalysis to confirm dependence as an essential condition of admission to methadone maintenance and to monitor the patient's use of illicit drugs. As we shall see, however, the Department appears to have abandoned this requirement, at least with respect to the authorization of physicians who are not affiliated with an approved program.

Both the Special Joint Committee and the Commission emphasized the importance of care in determining that there is a true case of opiate dependence before a patient is introduced to methadone maintenance. The Special Joint Committee insisted on urinalysis: "The diagnosis of narcotic dependence should be confirmed by the repeated presence of a narcotic drug in supervised samples of urine analysed by thin layer chromatography. The presence of heroin and other drugs should be checked regularly by supervising the collection of urine samples, in order to detect the patient's use of illicit drugs and orient his treatment."¹⁹ And again, the Committee said: "*Confirmation of the diagnosis of addiction by several daily consecutive, positive, urine determinations, is an essential requirement.*"²⁰ The same concern for adequate "laboratory monitoring" was one of the factors that lay behind the Commission's recommendation that methadone maintenance be placed under the supervision of specialized clinics. The assumption was that as a general rule only physicians who were affiliated with an organized methadone program would have access to the necessary laboratory facilities.

The application for temporary authorization of a physician who is not affiliated with a treatment unit or program calls for information on the qualifications, scientific training and experience of the physician in the management of narcotic addiction (as in the case of the physician who is affiliated to a treatment unit), a description of "the facilities available for treatment and of the laboratory services that will be used for determination of drugs of abuse in the urine", and a description of the principles that will be adhered to in selecting patients for treatment, ascertaining the diagnosis,

supervising the administration of methadone, allowing take-home privileges, and maintaining the clinical and laboratory surveillance of the patient's progress.

In a letter to the Commission concerning the criteria to be applied to these applications, Dr. A. B. Morrison, Assistant Deputy Minister, Health Protection Branch, said: "The applications from private practitioners without affiliation will be judged on their own merits and on the basis of the available evidence concerning our monitoring of the use of methadone by the individual practitioner."²¹

As of November 29, 1972, there were 455 practitioners authorized by the Minister to use methadone under the new regulations. Of these, 340 medical practitioners were authorized to use it for the treatment of narcotic addiction, 103 practitioners were authorized to use it as an analgesic agent only, four were authorized to use it as an antitussive agent only, and eight veterinaries were authorized to use it. Of the total number of physicians authorized to use methadone in the treatment of narcotic addiction, 118, or approximately 35 per cent, were affiliated with an approved methadone treatment program. Physicians affiliated with an approved program are restricted in the use of methadone to the treatment regime ("methadone maintenance and withdrawal" or "methadone withdrawal only") specified in the program's treatment protocol.²² Of the 118 physicians affiliated with approved programs, 102 were affiliated with programs authorized to use methadone in maintenance and withdrawal, and 16 were affiliated with programs authorized to use it in withdrawal only. Of the 222 physicians authorized to use methadone in the treatment of narcotic addiction but who were *not* affiliated with an approved program (see Table G.1 on page 978), 156 were authorized to use it in maintenance and withdrawal, and 66 were authorized to use it in withdrawal only. Thus, of the 340 physicians authorized to use methadone in the treatment of narcotic addiction, 258 were authorized to use it in maintenance and withdrawal, and 82 were authorized to use it in withdrawal only. In all, 23 treatment programs had been approved in 28 treatment locations.²³ When the federal control program was introduced early in 1972 there were only four fully operational methadone treatment units in Canada: the Narcotic Addiction Foundation of British Columbia, the Methadone Program operated in Edmonton by the Alcoholism and Drug Abuse Commission of Alberta, the Addiction Research Foundation of Ontario, and the Jewish General Hospital in Montreal, Quebec.

The distribution of authorized physicians by province is shown in Table G.1, and the approved treatment programs in Table G.2. It will be noted that at the end of November 1972, British Columbia, Ontario and Quebec had the greatest number of authorized physicians and approved programs for the use of methadone in the treatment of narcotic addiction, as follows: British Columbia—115 physicians and 11 approved treatment programs; Ontario—93 physicians and five approved treatment programs;

Quebec—59 authorized physicians and six approved treatment programs. After them ranked Alberta, with 29 authorized physicians and two approved treatment programs; Manitoba, with 19 authorized physicians and two approved treatment programs; and Nova Scotia, with 18 authorized physicians and two approved treatment programs. At that date there were physicians authorized to use methadone in the treatment of narcotic addiction in all provinces except Prince Edward Island and an approved treatment program for such purpose in all provinces except Saskatchewan, New Brunswick, Prince Edward Island and Newfoundland.

TABLE G.1

PHYSICIANS AND VETERINARIES AUTHORIZED TO USE METHADONE IN CANADA AS OF
NOVEMBER 1972

—	Physicians					Veterin- aries	TOTALS
	Affiliated with a Treatment Program	Not Affiliated with a Treatment Program (Nov. 1, 1972 to Oct. 31, 1973)					
		With- drawal and Mainten- ance	With- drawal only	Anal- gesia only	Antitus- sive only		
Province							
British Columbia.....	34	63	18	15	—	—	130
Alberta.....	13	6	10	9	—	—	38
Saskatchewan.....	—	5	—	1	—	1	7
Manitoba.....	16	—	3	6	—	2	27
Ontario.....	27	39	27	60	4	4	161
Quebec.....	23	31	5	9	—	—	68
New Brunswick.....	—	—	1	—	—	—	1
Nova Scotia.....	5	11	2	3	—	—	21
Prince Edward Island.....	—	—	—	—	—	1	1
Newfoundland.....	—	1	—	—	—	—	1
TOTALS.....	118	156	66	103	4	8	455

Source: Data from the Drug Advisory Bureau, Health Protection Branch, Department of National Health and Welfare, November 1972.

Although the total number of physicians authorized to use methadone in the treatment of narcotic addiction as of November 30, 1972 is only about 63 per cent of the number who had temporary authorizations for such purpose at the end of August, this decrease was not the result of rejection by the Department but rather of self-selection. The Department did not in fact turn down any application for authorization on or after November 1st, although there were a few cases in which it decided to send cautionary letters because of some concern over the physician's performance. There had been some withdrawals of authorization in the summer of 1972 by mutual agreement between the physician and the Drug Advisory Bureau.

G.1 Methadone Control Program of the Government of Canada

TABLE G.2

APPROVED METHADONE TREATMENT PROGRAMS IN CANADA AS OF NOVEMBER 1972

Province	Name and Location	Type of Treatment Program
British Columbia	1. Lower Mainland Regional Correctional Center, Burnaby, B.C.	Withdrawal Therapy
	2. South Okanagan Methadone Program, Kelowna, B.C.	Maintenance and Withdrawal Therapy
	3. Penticton Methadone Maintenance Clinic, Penticton, B.C.	Maintenance and Withdrawal Therapy
	4. Powell River General Hospital, Powell River, B.C.	Maintenance and Withdrawal Therapy
	5. Narcotic Addiction Foundation, Vancouver, B.C. (Principal Unit).	All Foundation Units: Maintenance and Withdrawal Therapy
	6. Narcotic Addiction Foundation, Trail, B.C. (Regional Unit).	
	7. Narcotic Addiction Foundation, Prince George, B.C. (Regional Unit).	
	8. Narcotic Addiction Foundation, Coquitlam, B.C. (Regional Unit).	
	9. Narcotic Addiction Foundation, Victoria, B.C. (Regional Unit).	
	10. Narcotic Addiction Foundation, Nanaimo, B.C. (Regional Unit).	
	11. Riverview Hospital, Essondale, B.C.	Withdrawal Therapy
Alberta	1. Edmonton Methadone Evaluation Committee, Methadone Clinic, Edmonton, Alberta.	Maintenance and Withdrawal Therapy
	2. Foothills Hospital, Calgary, Alberta.	Maintenance and Withdrawal Therapy
Saskatchewan	No approved programs.	
Manitoba	1. Brandon Hospital for Mental Diseases, Brandon, Manitoba.	Maintenance and Withdrawal Therapy
	2. St. Boniface Hospital Drug Rehabilitation Program, St. Boniface, Manitoba.	Maintenance and Withdrawal Therapy

TABLE G.2—*Continued*

APPROVED METHADONE TREATMENT PROGRAMS IN CANADA AS OF NOVEMBER 1972

Province	Name and Location	Type of Treatment Program
Ontario	1. Narcotic Dependence Program Clinical Institute, Addiction Research Foundation, Toronto, Ontario.	Maintenance and Withdrawal Therapy
	2. Charlton Project, Hamilton, Ontario.	Maintenance and Withdrawal Therapy
	3. IODE Hospital Methadone Clinic, Windsor, Ontario.	Maintenance and Withdrawal Therapy
	4. St. Catherine's Methadone Clinic, St. Catherine's, Ontario.	Maintenance and Withdrawal Therapy
	5. Ottawa General Hospital, Ottawa, Ontario.	Maintenance and Withdrawal Therapy
Quebec	1. Royal Victoria Hospital, Montreal, Quebec.	Maintenance and Withdrawal Therapy
	2. Jewish General Hospital, Institute of Community and Family Psychiatry, Montreal, Quebec.	Maintenance and Withdrawal Therapy
	3. Département de réadaptation pour alcooliques et autres toxicomanes, Hôpital St. Charles de Joliette, Joliette, Quebec.	Maintenance and Withdrawal Therapy
	4. Programme d'entretien à la méthadone (deuxième ligne), Montréal, Quebec.	Maintenance and Withdrawal Therapy
	5. Unité d'alcoolisme et de toxicomanie de l'Hôpital St-Michel Archange, Mastaï, Quebec.	Withdrawal Therapy
	6. Clinique de réadaptation pour toxicomanes du centre hospitalier universitaire de Sherbrooke, Sherbrooke, Quebec.	Withdrawal Therapy
New Brunswick	No approved programs.	
Nova Scotia	1. Nova Scotia Hospital, Dartmouth, Nova Scotia.	Withdrawal Therapy
	2. Victoria General Hospital, Halifax, Nova Scotia.	Maintenance and Withdrawal Therapy
Prince Edward Island	No approved programs.	
Newfoundland	No approved programs.	

Source: Data from Treatment Program Protocols submitted to the Drug Advisory Bureau, Health Protection Branch, Department of National Health and Welfare, November 1972.

It is not known what proportion of physicians authorized to use methadone without affiliation with an accepted clinic have access to laboratory facilities for the purpose of confirming dependence and monitoring illicit drug use. The authorization to use methadone after October 31, 1972 does not make urinalysis to confirm dependence and to monitor illicit drug use an explicit condition. At the time of the preparation of this report, all approved methadone clinics had access to urinalysis facilities, and authorized practitioners affiliated with these clinics were required to adhere to urinalysis procedures outlined in the clinics' treatment protocols. It is understood that in many cases the application for authorization received from physicians not affiliated with specialized treatment units did not make it clear whether such access to urinalysis would be available. The reasons given by the Health Protection Branch for not making access to urinalysis facilities a condition of authorization to use methadone are: first, that because of lack of the necessary facilities insistence on this requirement would severely reduce the availability of methadone for the treatment of narcotic dependence; secondly, there is some conflict of expert opinion as to the necessity or desirability of urinalysis; and thirdly, there is some opposition by individual physicians to the use of urinalysis because of its alleged effect on the physician-patient relationship and the patient's attitude towards treatment.

It should be noted further, that the authorizations to use methadone, whether the physician is affiliated or not, contemplate the possibility of self-administration on prescription and do not insist upon administration under direct supervision of the physician in all cases. The condition with respect to administration is in the following terms:

Administration or prescription of methadone for narcotic addicts shall be only in a liquid dosage form that does not lend itself to mainlining, such as methadone dissolved in a constant volume of approximately 100 mg of 'Tang'.

The drug shall be administered to addicts under direct supervision, or supplied or dispensed in oral liquid dosage form in limited quantities, when a cooperative relationship has been established between the patient and the practitioner.

The Special Joint Committee, in referring to the principles which should be followed in the use of methadone by a physician working outside an established methadone maintenance program, laid down the following rule concerning administration: "Arrangements should be made for direct administration to the patient of oral methadone, preferably in liquid form, which should be ingested always under the supervision of the physician, nurse or pharmacist. *Written prescriptions for methadone should never be given to narcotic-dependent patients.*"²⁴ The Commission was less explicit on this point. It spoke of the "administration" rather than the prescription of methadone, but it did not expressly rule out the possibility of prescription.

The Commission's concern about the dangers of prescription is clearly reflected, however, in the following passage in the *Treatment Report*:

Unquestionably, the greatest illicit use occurs in the prescription of methadone by private physicians who have no facilities for laboratory monitoring or social follow-up, who prescribe more than two days' supply for self-medication and for 'self-withdrawal' . . . and who cannot be certain that they are the sole source of supply for individual patients.²⁵

Prescription or self-administration is permitted under the so-called "British system" of heroin and methadone maintenance, and it is permitted in varying degrees in methadone programs on this continent.

On this point the *Treatment Report* contained the following passage:

Dispensing is most commonly done by administering methadone dissolved in Tang under supervision. Daily visits to the clinic are almost universal during the first part of the program, with gradual spacing of visits made possible by issuing doses for self-administration as the clinic develops trust in the individual patient. The maximum released at any clinic is a one-week supply.²⁶

G.2 SOME ASPECTS OF THE "BRITISH SYSTEM"¹

Although the history of opiate dependence and the present conditions in Great Britain are quite different from those on this continent, two remarkable facts remain: the population of known addicts appears to have been fairly stable in recent years, and while there is certainly an illicit market in narcotics there is still no evidence that it is an organized or even a very significant one.

The law enforcement task with respect to the opiate narcotics is much easier in Great Britain than it is on this continent, although it is important to keep in mind that the clinic "system" does not dispense with the need of law enforcement to suppress an illicit market. In 1970, there were 281 persons convicted of offences involving heroin in Great Britain. Of these, 157 were convicted of possession (which included possession for personal use as well as possession with intent to sell).²

The number of "active" addicts (those using drugs) known to the Home Office in recent years is as follows: 1969 - 1,456; 1970 - 1,430; 1971 - 1,555.³ It is estimated that the total number of addicts who are not using but are at risk of relapse is 3,000.⁴ It is on the basis of these figures and other indications that the authorities express the opinion that the heroin problem is being "contained".⁵

There may be other factors peculiar to Great Britain which explain this enviable situation and which make the British experience more or less irrelevant to conditions on this continent. The British do not make particular claims for the "success" of their approach. Characteristically, they are quite

matter-of-fact about it and adopt a pragmatic approach, watching to see how it turns out. There is no serious body of opinion, however, in treatment or in law enforcement that advocates abandoning the present approach. Certainly, the results appear to justify the general conclusion that the approach is a reasonably successful one.

The British have been gradually shifting their emphasis from heroin to methadone, although it must be observed that a high proportion of the methadone administration in Great Britain is still in intravenous form. The total quantities of heroin and methadone used in the clinics in recent years are as follows:

<i>Year</i>	<i>Heroin (grams)</i>	<i>Methadone</i>
1969	18,393	3,341
1970	17,387	14,833
1971	14,201	15,691

Source: Department of Health and Social Security.

For purposes of rough comparison, doses of heroin and methadone may be treated as equivalent. Heroin and methadone are used interchangeably on a weight for weight basis.⁶

The proportion of oral methadone in 1971 was only about 24 per cent of the total methadone used. Difficulty is experienced in persuading patients to accept oral methadone. British experts have attributed this to the long-established practice of prescribing narcotics for intravenous administration and to the difficulty of weaning addicts from the needle fixation. As one expert put it, "It is often as hard to break the needle habit as it is to break the drug habit."⁷ There has been fear that too great an insistence on oral methadone would drive patients away or encourage the development of a black market in heroin.⁸ It is felt that it is easier to wean a patient from intravenous methadone to oral methadone than from heroin to oral methadone.⁹ The general approach with a "needle using heroin addict" has been described as follows:

- (i) try to get him off intravenous heroin and onto intravenous methadone;
- (ii) try to reduce the dose of intravenous methadone;
- (iii) try to transfer the patient from intravenous methadone to oral methadone;
- (iv) try to get him off drugs altogether.¹⁰

There are other important differences in the British and North American approaches to opiate maintenance. The British do not use blocking doses of methadone, but rather maintenance therapy on reducing doses.¹¹ The reason for this is presumably that heroin can also be prescribed so that it is not

essential to prescribe a dose of methadone that will completely block the action of heroin. Secondly, instead of supervised administration on the premises, which is the general rule for organized methadone treatment programs in Canada, the general rule in Great Britain is that addicts pick up their drug supply on prescription from pharmacists. They are required to pick up their supply daily, except on Saturdays, when they can take a two-day supply. Many clinics supply addicts with sterile disposable syringes for intravenous administration.¹² One reason for favouring injectable methadone over heroin is that methadone can be supplied in solution in ampoules. This avoids the unsterile practices involved in dissolving tablets of heroin which are the cause of serious complications.¹³

The British clinics vary considerably in the extent to which they provide ancillary services for social adjustment. In the fall of 1972 a group of 70 patients at the Charing Cross Clinic who had been abstinent for periods of up to three years, were being visited monthly by social workers, their functioning in the community was assessed, their arms were inspected for injection marks, and specimens of their urine were taken for analysis.¹⁴ The clinic uses social workers, volunteers for counselling and vocational guidance as needed, but no group therapy.¹⁵

Generally speaking, the approach to treatment in Great Britain has been described as a "multi-pronged" one that incorporates all the available services, including social workers, visiting nurses, vocational guidance and training counselling, psychiatric care and housing facilities. Individual clinics and clinicians have the freedom of choosing which facilities they will use generally and for individual patients. Some clinics use a great deal, others less, depending upon perceived needs. Some patients may require only maintenance therapy; others may require psychiatric help. Most need purely social help, such as obtaining employment and housing. A senior medical officer in the Department of Health and Social Security expressed the importance of ancillary services as follows:

I think that treatment and rehabilitation cannot be separated from one another. In a report on the Rehabilitation of Drug Addicts, the Advisory Committee on Drug Dependence recommended that rehabilitation begins with the contact with the addict. This is usually at the Drug Dependence Clinic. Out-patient treatment and rehabilitation programmes have not been running long enough for us to have evaluated their contribution to the successful treatment of the drug addicts. My own observations are that one needs a variety of facilities and professional and voluntary workers to cover the variety of problems presented by drug addicts. The mere withdrawal of the drug from the addict is most unlikely to succeed if there is no substitution of the drug culture by a social life which is satisfying and if there is no skilled help with the emotional and personality problems which will help the addicts to abandon the former culture and accept the latter. The successful outcome of treatment appears to be related to a multi-disciplinary approach to the problem with a backing up of a number of treatment and rehabilitation facilities, e.g. social work support, various types of hostels, day centres and etc.¹⁶

NOTES

G.1 Methadone Control Program of the Government of Canada

1. Methadone and the Care of the Narcotic Addict: Report of A Special Joint Committee of the Canadian Medical Association and the Department of National Health and Welfare Food and Drug Directorate, p. 6.
2. *Treatment Report*, pp. 27–28.
3. These figures, furnished to the Commission by the Bureau of Dangerous Drugs, are pure drug figures representing the pure anhydrous base content of the total substance imported; in the case of methadone, this amounts to about 90% of the total quantity of methadone compounds imported each year.
4. Note 1, *supra*, p. 6. The figures for imports cited by the Joint Committee, which were apparently not in pure drugs terms and were therefore somewhat higher than those furnished by the Bureau of Dangerous Drugs, were as follows: 1966 – 3.29 kg; 1967 – 5.71 kg; 1968 – 10.4 kg; 1969 – 13.4 kg; 1970 – 30.19 kg; first half of 1971 – 30 kg.
5. These figures are furnished by the Bureau of Dangerous Drugs to the International Narcotics Control Board. For this purpose estimates of consumption of the main narcotics, including methadone, are stated in pure drug figures and are based upon a formula which reflects changes in the inventory of drug manufacturers and distributors in Canada from the last day of the preceding year to the last day of the current year, plus imports and minus exports of the substances during the year. The result is that the narcotic is estimated to be consumed when it is supplied by the drug manufacturer or distributor to the hospital, pharmacy or physician.
6. Source for the figures in this paragraph: Bureau of Dangerous Drugs, Health Protection Branch, Department of National Health and Welfare, Statements of Convictions Involving Methadone for the Calendar Years 1970 and 1971 and for the Period Jan. 1—June 30, 1972, as recorded to July 21, 1972.
7. *Treatment Report*, p. 31.
8. *Debates*, House of Commons, Canada, February 24, 1972, p. 197.
9. Canada, Health Protection Branch, Department of National Health and Welfare, "Guidelines for Establishing Affiliation with Specialized Treatment Units and Applying for Authorization to use Methadone," 1972, p. 1.
10. These requirements were adopted verbatim from the Report of the Special Joint Committee of the Food and Drug Directorate and the Canadian Medical Association.
11. Order in Council P.C. 1972-1033, 16 May 1972, SOR/72-155.
12. *Narcotic Control Regulations*, section 38(3). The physician must be named in an authorization issued by the Minister under section 47(1) of the

Narcotic Control Regulations, which, as amended on August 24, 1972 (P.C. 1972-1795, 24 August 1972, SOR/72-337), reads in part as follows:

Where he deems it to be in the public interest, or in the interests of science, the Minister may in writing, authorize . . . (d) any practitioner to administer, prescribe, give, sell or furnish methadone to a person or animal who is a patient under his professional treatment.

13. *Narcotic Control Regulations*, sections 20(3), 24(3)(d).
14. *Ibid.*, section 20(2)(e).
15. These figures were compiled by Commission research staff from the records of the Drug Advisory Bureau and the Bureau of Dangerous Drugs.
16. This Committee, consisting of Dr. T. Da Silva, Head, Central Nervous System Section, Drug Advisory Bureau, Health Protection Branch, Department of National Health and Welfare; Dr. C. J. Schwartz, University of British Columbia; Dr. Ramsey W. Gunton, Department of Medicine, University of Western Ontario; Dr. Jean-M. Bordeleau, University of Montreal; Dr. Marcel A. Baltzan, Saskatoon (Dr. John Bennett of the Canadian Medical Association has substituted for Dr. Baltzan at past meetings of the Committee), met on October 10, 11 and 12, 1972.
17. Note 9, *supra*, p. 3.
18. *Ibid.*, p. 5.
19. Note 1, *supra*, p. 9.
20. *Ibid.*, p. 12. Italics are those of the Committee.
21. Personal communication to the Commission, October 20, 1972.
22. T. Da Silva, M.D., Head, Central Nervous System Section, Drug Advisory Bureau, Health Protection Branch, Department of National Health and Welfare, personal communication to the Commission, February 2, 1973.
23. The Narcotic Addiction Foundation of British Columbia has six clinic locations.
24. Note 1, *supra*, p. 9. Italics are those of the Committee.
25. *Treatment Report*, pp. 27-28.
26. *Ibid.*, p. 25.

G.2 *Some Aspects of the "British System"*

1. This brief discussion of certain aspects of the British approach to the treatment of opiate dependents is an attempt to bring our general perspective up to date on the basis of correspondence and telephone conversations with government officials and treatment personnel in the fall of 1972. In the course of its inquiry the Commission had access to other sources of information and evaluation concerning the British system. In addition to a review of the literature, a member of the Commission visited a number of treatment clinics and spoke to public officials and clinic directors in England, the Commission consulted frequently with leading treatment experts, and it held a symposium on treatment at which British experience and expertise were represented.
2. H. B. Spear (Home Office, London, England), personal communication to the Commission, September 26, 1972.

3. D. A. Cahal, Senior Principal Medical Officer (Department of Health and Social Security, London, England), personal communication to the Commission, September 5, 1972. (These figures are the number of opiate-dependent persons who are known to be using drugs at the end of the calendar year. The total number of opiate-dependent persons seen by the clinics in the course of the year is slightly under 3,000, and this figure is also often stated for the number of known addicts. But Dr. Cahal expressed the opinion to the Commission that the lower figure was the more reliable for purposes of estimating the actual number who were still using drugs at a particular time.)
4. Ibid.
5. Cahal, personal communication to the Commission, October 18, 1972.
6. Dr. T. H. Bewley, Consultant Psychiatrist (Tooting Bec Hospital, London, England), personal communication to the Commission, October 18, 1972.
7. Cahal, personal communication to the Commission, September 5, 1972.
8. Dr. Gerry Stimson, Medical Sociology Research Centre (Swansea, Glam., Wales), personal communication to the Commission, September 28, 1972.
9. Dr. G. B. Oppenheim, Consultant Psychiatrist (Charing Cross Hospital, London, England), personal communication to the Commission, October 25, 1972.
10. Cahal, personal communication to the Commission, September 5, 1972.
11. Ibid.
12. Ibid.
13. Cahal, personal communication to the Commission, September 5, 1972 and Dr. A. Sippert, Senior Medical Officer (Department of Health and Social Security, London, England), personal communication to the Commission, September 22, 1972.
14. Oppenheim, personal communication to the Commission, October 25, 1972.
15. Ibid.
16. Dr. A. Sippert, Senior Medical Officer (Department of Health and Social Security, London, England), personal communication to the Commission, October 20, 1972.

Treatment Capacity in the Provinces

INTRODUCTION

The first concern of treatment insofar as opiate dependence is concerned must be the extent of the treatment facilities in British Columbia, where the major problem of opiate use and dependence exists. It is doubtful if the province has adequate treatment capacity for an opiate-dependent population that may number as many as 10,000.

BRITISH COLUMBIA

Methadone maintenance. In British Columbia at the end of November 1972, there were 11 approved treatment units for methadone maintenance, six of them operated by the Narcotic Addiction Foundation. The Foundation's main unit is in Vancouver, and it has regional units at Trail, Prince George, Coquitlam, Victoria, and Nanaimo. Other approved treatment programs in the province are the Lower Mainland Regional Correctional Centre at Burnaby, the South Okanagan Methadone Program at Kelowna, the Penticton Methadone Maintenance Clinic at Penticton, the Powell River General Hospital, and the Riverview Hospital, Essondale.

In November 1972 there were 115 physicians in British Columbia authorized to administer or prescribe methadone to opiate-dependent persons, 34 of them affiliated with approved treatment programs, and 81 not affiliated. Of the latter, 63 were authorized to use methadone in maintenance, as well as withdrawal, and 18 in withdrawal only. In the protocol which it submitted for approval to the Drug Advisory Bureau of the Department of National Health and Welfare during the summer of 1972, the Narcotic Addiction Foundation estimated the caseload of its Vancouver unit at 400 patients and the caseload of three of its four regional units at 50 patients each. There was no estimate for the fourth. The other approved programs estimated very small caseloads.

According to the records of the Bureau of Dangerous Drugs, 454 persons received methadone from the Narcotic Addiction Foundation in June 1972 and 493 in July. During the same two-month period, 346 persons received methadone from other sources in British Columbia. The Vancouver unit of the Foundation sees approximately 1,000 people a year, but its average daily caseload is about 350 to 400 patients. On the basis of the information that we have been able to gather we would estimate that there are not more than 650 to 800 persons regularly in methadone maintenance in the province. It is fairly safe to assume that the total is not more than ten per cent of the probable total population of opiate dependents in British Columbia. If we take the assumption made in the United States that methadone maintenance could be made to reach at least 40 per cent of the opiate-dependent population,¹ then present delivery of this form of treatment or management is well below potential. This situation may, of course, reflect lack of awareness of demand as well as insufficient capacity.

The effective reach of methadone maintenance is even less because it is estimated by treatment personnel of the Foundation that not more than 20 or 25% of the persons who come for treatment at the Foundation remain in it for any length of time, and that only about 10% of these are benefited by it in the long run.²

What is lacking in methadone maintenance programs is sufficient trained personnel for adequate follow-up and assistance with adjustment in the community. It is the same lack that we encounter in probation and parole. There are not enough people to give opiate dependents the close attention they require. Moreover, there is a need for smaller caseloads.

In the Vancouver methadone maintenance unit of the Foundation there are two full-time medical practitioners, two full-time pharmacists, lab technicians and pharmacy technicians, and four full-time social workers, each with a caseload of 80 or 90 patients. The regional units at Victoria, Nanaimo, Prince George, Trail, and Coquitlam are each staffed with one medical practitioner on half-time, two counsellors and a receptionist. All clinical laboratory analysis is done at the Vancouver unit. Samples are mailed in from the regional units.

A major drawback of the treatment program at the Foundation is that it is not sufficiently comprehensive and it lacks an effective research and evaluative component. The present approach is almost exclusively pharmacological. The Foundation is funded by seven different government agencies, federal and provincial, and the frame of reference for funding purposes is the medical model. What is required is a much more comprehensive or multi-modal approach to treatment which, in addition to methadone maintenance, would include residential treatment in therapeutic communities, detoxification in a highly supportive setting, a wide range of adjunctive services—workshops, recreational activities, and the like—and a research and evaluation component. The lack of such a component is seen by Foundation

staff to be a major weakness of their program at the present time. Without such a component there can be little hope of development of treatment efficacy.

The Foundation has operated some other therapeutic or rehabilitative facilities. *The House* was organized as a drop-in centre for persons with problems with drugs other than opiate narcotics. As it became apparent that one could not separate types of drug use in this way, *The House* became a crisis intervention centre for all types of drug use. It has three crisis beds, but it is not a residential centre. There is no follow-up in the community, with the result that once an individual leaves the premises he may have no further contact with *The House*.

In Touch, the outreach component of *The House* and the clinic, was a one-year experimental project funded by matched contributions from a philanthropist and the federal and provincial governments. It was closed, for lack of further financial support, towards the end of 1972.

Facilities for urinalysis. The Foundation would appear to have adequate equipment and staff for urinalysis. It carries out approximately 6,000 urinalyses a month. The Foundation has been using thin-layer chromatography (TLC), which permits qualitative but not quantitative analysis. In the fall of 1972 it received a provincial government grant to permit it to establish a clinical laboratory, with gas liquid chromatography equipment (which permits quantitative analysis), for the analysis of street drugs.

Equipment for qualitative TLC tests costs about three hundred to four hundred dollars and has been installed at the Royal Jubilee Hospital in Victoria, the Royal Columbia Hospital in New Westminster, and in Vancouver at the Biomedical Laboratory, the Provincial Medical Laboratory, the Vancouver General Hospital, the Children's Hospital, the Federal Food and Drug Laboratory, and the Narcotic Addiction Foundation treatment unit. The quantitative GLC testing equipment costs about ten thousand dollars, and facilities for this exist at the Royal Jubilee Hospital in Victoria, the Royal Columbia Hospital in New Westminster, and in Vancouver at the Vancouver General Hospital and the University of British Columbia, as well as the Foundation.

There is a consensus of opinion in British Columbia that adequate facilities now exist to handle qualitative analysis for the entire opiate-dependent population in the province, and that with the expansion of the Foundation's laboratory there will be adequate facilities for quantitative analysis as well.

Therapeutic communities and other residential treatment units. The total capacity of residential treatment programs in British Columbia is relatively small. X-Kalay Foundation Society, one of the oldest and largest therapeutic communities in Canada, has a capacity in its various facilities

in British Columbia of about 65. X-Kalay's facilities are not exclusively reserved for opiate dependents. X-Kalay's capacity may increase to approximately 125 upon execution of a proposed expansion to a farm location in Langley, British Columbia. (A survey conducted by the Commission to determine the residential capacity of therapeutic communities in Canada is described in detail, and the results of the survey presented in tabular form, in the Annex to this Appendix on pages 1000 to 1003.)

In Vancouver X-Kalay maintains a variety of premises—a residence which is a former private hospital and accommodates a maximum of 40 persons, an office and two private homes. In the fall of 1972 there were about 30 persons in residence in X-Kalay in Vancouver. Operating expenses were running at about \$10,000 per month, or about \$4,000 per resident per year.

X-Kalay rents a small hotel and five cabins on Salt Spring Island, which accommodate approximately 25 persons. The Foundation operates a dining room and a coffee shop in the hotel. The facilities are used primarily by X-Kalay therapy groups, and are occasionally loaned or rented to other community organizations and associations. During the winter, Salt Spring Island is managed by a skeleton staff of three to four people. It is used to a greater extent during the summer.

By the fall of 1972 plans for the X-Kalay mini-village had been revised to locate the facility on a six-acre farm near Langley, British Columbia, with a capacity of about 60 residents. The estimated cost was \$700,000, and negotiations for financial assistance were being conducted at both levels of government. The new building would reduce operating expenses to about \$9,000 per month, or about \$1,800 per resident per year if the facilities were operated at full capacity.

The three businesses which X-Kalay operated (a service station, a beauty salon, and an advertising service industry) were closed in the spring of 1972, primarily because their operation interfered with treatment. David M. Berner, Executive Director of X-Kalay, is now of the opinion that it is not advisable to operate a commercial enterprise for therapeutic purposes, and that some kind of sheltered industry should be established instead.

The Director provided the Commission with the following percentages of persons treated at X-Kalay during the period January 1969 to June 1972 for various problems (classified as "drugs", "alcohol" and "other") who remained drug-free and gainfully employed, which are the essential criteria of "success" in the program:

Problem	Male	Female	Average
Drugs	42.1%	36.8%	39.3%
Alcohol	46.8%	33.3%	43.6%
Other	11.1%	29.9%	20.5%

Although the number of residents in the Vancouver facility of X-Kalay remains fairly constant at about 30 persons, the population is fluid. The Director estimates that about three persons enter or leave the community each week. Of the 30 persons at X-Kalay in the fall of 1972, about half had been there a considerable time, and about eight to ten for several months. In talking with the Commission, the Director spoke of the same "split rate" phenomenon described by American authors who have commented on the experience of therapeutic communities: the greatest number of persons leave the first day; the next largest number leave after about three weeks; those who remain longer than three weeks generally remain for three to six months; if they remain at the end of that period, they will likely remain one and one-half years, which the Director estimates to be the optimum treatment period. In the *Treatment Report* we stated that X-Kalay does not aim to return its people to society, (p. 87). The Director states that this is not the case: that residents do enter the community at large after a period of treatment in X-Kalay, and that X-Kalay encourages them to do so.

The Director has expressed the opinion that between 200 and 300 residents is the optimum number for a therapeutic community like X-Kalay, and that several such communities could be established if there were sufficient funds available, administrative staff was supplied, and some agency would contract to fund a training program of approximately six months for therapeutic community leaders.

There is one other therapeutic community in British Columbia, a residence operated by Teen Challenge (a Christian organization) in Richmond. The total number of opiate dependents accommodated by this program is comparatively small.

ALBERTA

Early in 1972 Calgary experimented with a program of withdrawal for opiate dependents. It proved to be unsuccessful. Few presented themselves for detoxification, and of those who did, few completed the five-day withdrawal program. Later in the year interested physicians were urging the establishment of a methadone maintenance clinic, and a proposal was being considered by the Methadone Evaluation Committee of the Alcoholism and Drug Abuse Commission. A protocol was approved by the Department of National Health and Welfare for the Foothills Hospital in Calgary to carry on a limited withdrawal inpatient facility and a limited methadone maintenance program. At the time of approval the program was still in an "embryonic" state and was looking for financial support.

A methadone clinic began operation in Edmonton in January 1972 under the direction of a joint committee of the Alberta Medical Association

and the Alcoholism and Drug Abuse Commission. As of June 30th the clinic had seen approximately 190 patients. In October there were 79 patients in methadone maintenance. Of these, 52 received methadone at the clinic and 27 obtained it on prescription at pharmacies in Edmonton.³ The protocol of the Edmonton Methadone Clinic has been approved by the Department of National Health and Welfare.

As of November 1972, 13 physicians affiliated with approved treatment programs had been authorized to use methadone maintenance in the treatment of opiate dependence in Alberta, and 16 physicians were authorized who were not affiliated with a program. Of these, six were authorized to use methadone in maintenance, as well as withdrawal, and ten in withdrawal only.

It is estimated that there were about 750 opiate dependents in Alberta in the fall of 1972, with about 120 in methadone treatment.

There are currently three therapeutic communities operating in Alberta with a combined residential capacity of 50. As one of these programs has only recently begun, the overall capacity of therapeutic communities in the Province can be expected to increase in the near future.

SASKATCHEWAN

On October 20, 1972 there were 12 persons being maintained on methadone at the Alcoholism Rehabilitation Centre in Regina. During the previous two months there had been an average of 18–20 methadone patients at the Centre. At that time, methadone was being employed by physicians at the Centre in the following ways: (1) high dose administration (85–120 mg) decreased after six to eight weeks; (2) medium dose (80 mg) maintenance for an indefinite period—particularly for patients between the ages of 25 and 30; and (3) high dose (85–120 mg) maintenance for patients 40 years and older.⁴

As of November 1972 there were no methadone programs in Saskatchewan formally approved by the Department of National Health and Welfare; and hence, no physicians were authorized to use methadone on a permanent basis through affiliation with an approved program. However, five unaffiliated physicians in Saskatchewan were authorized by the Department to use methadone in both withdrawal and maintenance therapy.

On the basis of a survey of methadone prescriptions in Saskatchewan, the Bureau of Dangerous Drugs recorded 53 individuals who had received methadone in the Province during the period May 1st to July 31, 1972. The opiate-dependent population in Saskatchewan was estimated at 125 in the fall of 1972.

MANITOBA

In Manitoba there are two approved methadone programs: the St. Boniface Hospital Drug Rehabilitation Program and the program at the Brandon Hospital for Mental Diseases. In October 1972, there were approximately 60 opiate dependents in the St. Boniface program: 5 were "medical addicts"; the remaining 55 were all regular heroin users of whom 33 were being maintained on methadone, some were being detoxified with methadone, and some were being treated without the aid of any drug. Six of the methadone maintenance patients were permitted to take home daily supplies; the remainder were obliged to consume their medication at the clinic and to present a urine sample each day. The five "medical addicts" were given weekly supplies of the drug. Of the 60 patients at the clinic 40 were either employed, going to school or housewives with children.⁵

As of November 1972, 16 physicians who were affiliated with an approved treatment program had been authorized to use methadone and three who were not affiliated had been authorized. The latter were authorized to use it in withdrawal only.

It is estimated that there were about 450 opiate dependents in Manitoba in the fall of 1972, of whom 70 were receiving methadone treatment.

X-Kalay Foundation Society operates a therapeutic community at St. Norbert, Manitoba, in which 51 drug-dependent persons are in residence. This community, located on a farm, has a maximum capacity of 80. An urban-based group called Kiazam operates a residential facility for opiate dependents in Winnipeg with a capacity of ten.

ONTARIO

As of November 1972 there were five approved methadone treatment programs in Ontario: the Narcotic Dependence Program Clinical Institute of the Addiction Research Foundation, in Toronto; the Charlton Project, Hamilton; the IODE Hospital Methadone Clinic, Windsor; the St. Catherines Methadone Clinic, St. Catherines; and the Ottawa General Hospital, Ottawa. Twenty-seven physicians who were affiliated with approved programs were authorized to use methadone in treatment and 66 who were not affiliated. Of the latter, 39 were authorized to use methadone in maintenance, as well as withdrawal, and 27 in withdrawal only.

The prescription records of the Bureau of Dangerous Drugs indicate that 230 persons received methadone in Ontario during June and July 1972. The active caseload of patients on methadone at the Addiction Research Foundation is between 100 and 110 at any one time. The Director of the Foundation's program indicated to the Commission that in the past three years there were close to 500 applicants for methadone maintenance of

whom about 260 were accepted.⁶ How many of the remainder were suitable candidates for methadone maintenance but could not be handled because of the Foundation's limited facilities is not clear. It is clear, however, that the Foundation has deliberately limited its caseload to about 100, as the optimum number which it feels it can manage effectively with its limited staff and the follow-up that is required. Thus its capacity is severely limited in relation to the probable potential for methadone maintenance in the Toronto area.

The Foundation operates an outpatient clinic for addicts on Yonge Street and a 100-bed clinical institute on Russell Streets, in Toronto. The Foundation operates three types of methadone programs: short-term withdrawal, prolonged withdrawal and methadone maintenance therapy. The protocol submitted by the Foundation to the Drug Advisory Bureau of the Department of National Health and Welfare states that short-term withdrawal is used as a last resort for long-term addicts when no other course is feasible. It is also the primary course to be used for neophyte users and persons under 18 years. The short-term withdrawal program takes about 18 days. The protocol states that the prolonged withdrawal program is used primarily where longer therapeutic endeavour is indicated but commitment to methadone maintenance is lacking, patients display some degree of motivation to achieve a drug-free state, their addiction history does not indicate a long-term involvement with heroin, and unsuccessful withdrawal attempts have been carried out. The prolonged withdrawal program is aimed at achieving a drug-free state within four to six months.

An evaluation of the Foundation's methadone maintenance program indicated a drop-out rate of 56.7% (51 out of 90) within one year.⁷

Ontario has the largest number of therapeutic communities for drug-dependent persons in Canada, although the residential capacities of these communities is comparatively small. Thirteen residential programs had a combined total of 136 residents in February 1973, with a maximum capacity of about 200. Only a few of these programs were exclusively concerned with opiate or amphetamine dependence. The Twin Valley program in London, Ontario, is planning to develop an 800-acre rural community to accommodate several hundred drug-dependent persons.

QUEBEC

There are six approved methadone programs in Quebec: Royal Victoria Hospital, Montreal; the Jewish General Hospital, Montreal; Département de réadaptation pour alcooliques et autres toxicomanes, Hôpital St. Charles de Joliette, Joliette; Programme d'entretien à la méthadone (Deuxième Ligne), Montréal; Unité d'alcoolisme et de toxicomanie de l'Hôpital St. Michel Archange, Mastai; Clinique de réadaptation pour toxicomanes au Centre hospitalier universitaire de Sherbrooke, Sherbrooke.

As of November 1972, 23 physicians who were affiliated with approved treatment programs were authorized to use methadone, and 36 who were not affiliated. Of the latter, 31 were authorized to use methadone in maintenance, as well as withdrawal, and five in withdrawal only.

In the fall of 1972 the Royal Victoria Hospital had about 25 patients in its methadone program. The protocol which it submitted to the Federal Government stated that a maximum of 150 patients will be accepted in the program.

In the fall of 1972 there were six patients on methadone maintenance in the program of the Jewish General Hospital. The Commission was informed that because of limitations of staff and funds a limit of 12 patients had been set for this program.⁸ In the protocol submitted to the Federal Government it was stated that between June and September 1972, 53 patients had contacted the clinic and that it was "likely that as the program develops and expands this rate will increase significantly".

In the fall of 1972 there were 15 patients in the methadone program of Deuxième Ligne, in Montreal. The program has applied for government financial support to permit it to accommodate as many as 150 patients.⁹

As of February 1973 there were three therapeutic communities in Quebec caring for 65 drug-dependent persons. At the time of the Commission's survey (see the Annex on page 1000) two additional therapeutic communities were in advanced planning stages. The overall capacity of therapeutic communities in Quebec is likely to increase with the proposed expansion of the "Portage" program, which may eventually accommodate as many as 100 drug-dependent persons.

MARITIME PROVINCES

There have been two methadone programs approved for Nova Scotia; the Nova Scotia Hospital at Dartmouth, and the Victoria General Hospital at Halifax. As of November 1972, five physicians who were affiliated with approved treatment programs had been authorized to use methadone and 13 physicians who were not affiliated. Of the latter, 11 were authorized to use methadone in maintenance, as well as withdrawal, and two in withdrawal only. The Nova Scotia Hospital at Dartmouth uses methadone for withdrawal therapy only. In November 1972, it had one patient in treatment.

Therapeutic communities in the Maritimes have an overall capacity of approximately 50. These programs include two residences in Halifax, Nova Scotia, which have been seeing problems associated primarily with amphetamine and multi-drug use, a community located on a farm near St. John, New Brunswick, and a residence in Charlottetown, Prince Edward Island.

HOSPITAL FACILITIES IN CANADA

On the suggestion of the Department of National Health and Welfare and the Canadian Hospital Association, Statistics Canada incorporated into its Quarterly Hospital Information System for the fourth quarter of 1971 a questionnaire to identify "those hospitals that considered they were making some provision for the treatment of persons having problems with 'alcohol' and/or 'drugs' on an ambulatory or inpatient basis."¹⁰ Since the terms "provision" and "treatment" as employed in this questionnaire were purposely not defined, the responses to the survey served only to determine "the universe of general and allied special hospitals that, in their opinion, are providing some kind of hospital service to patients on an ambulatory or inpatient basis. Obviously, the scope and quality of the services provided by the responding hospitals would vary greatly."¹¹

As of December 31, 1971, there were 1,234 general and allied special hospitals in operation in Canada, all of which received the above-mentioned questionnaire from Statistics Canada. One thousand and forty-five, or almost 85%, of these hospitals returned completed questionnaires.

In an analysis of the data contained in these completed questionnaires, the Health Economics and Statistics Directorate, Health Program Branch, Department of National Health and Welfare, noted a further qualification of the results of this hospital survey in the following words:

... as 'alcohol' and 'drugs' are not necessarily exclusive categories there is likely to be some overlapping in the reporting by hospitals. Also, because of the prevalence of multiple drug problems, treatment of addiction may be integrated in a single program.¹²

Statistics Canada's survey indicated that on the whole the provision in hospitals in Canada for the treatment of persons having problems associated with "drugs" is less common than the provision for the treatment in hospitals of persons experiencing problems with alcohol. (See Table H.1.) Of the 1,045 reporting hospitals, 309 (29.6%) provided inpatient treatment and 313 (29.9%) provided outpatient treatment for persons experiencing problems with "drugs" as of December 31, 1971.

The number and proportion of reporting hospitals providing inpatient and outpatient treatment for persons having problems with "drugs" and alcohol are presented by province in Table H.1. While the results of this survey are limited for the reasons mentioned above, they do, however, suggest that there may not be sufficient capacity for ambulatory and inpatient treatment of problems primarily associated with non-medical drug use in hospital facilities in Canada generally.

TABLE H.1

HOSPITALS REPORTING TREATMENT SERVICES FOR DRUG AND ALCOHOL PROBLEMS
BY TYPE OF SERVICE AND BY PROVINCE, DECEMBER 31, 1971

Province	No. of Hospitals Surveyed	Hospitals Reporting	Drugs				Alcohol				
			In-Pt.		Out-Pt.		In-Pt.		Out-Pt.		
		No.	%	No.	%	No.	%	No.	%	No.	%
Nfld.....	47	34	72.3	7	20.6	7	20.6	9	26.5	8	23.5
P.E.I.....	9	4	44.4	1	25.0	1	25.0	2	50.0	—	—
N.S.....	50	49	98.0	11	22.4	11	22.4	12	24.5	10	20.4
N.B.....	40	34	85.0	6	17.6	7	20.6	8	23.5	8	23.5
Que.....	256	220	85.9	61	27.6	74	33.5	73	33.0	82	37.1
Ont.....	273	232	85.0	89	38.4	94	40.5	91	39.2	91	39.2
Man.....	103	91	88.3	19	20.9	18	19.8	26	28.6	20	22.0
Sask.....	143	111	77.6	30	27.0	25	22.5	34	30.6	27	24.3
Alta.....	153	132	86.3	41	31.1	37	28.0	47	35.6	36	27.3
B.C.....	116	108	93.1	33	30.6	31	28.7	36	33.3	33	30.5
Yukon.....	6	5	83.3	3	60.0	2	40.0	3	60.0	2	40.0
N.W.T.....	38	25	65.8	8	32.0	6	24.0	9	36.0	7	28.0
Canada.....	1,234	1,045	84.6	309	29.6	313	29.9	350	33.5	324	31.0

Source: This table was prepared by the Health Economics and Statistics Directorate, Health Programs Branch, Department of National Health and Welfare, on October 5, 1972 from the Institutions Section, Health and Welfare Division of Statistics Canada, Summary Tables for *Canada 1971*, and each province and territory based on listing of responses by individual hospitals to questionnaire survey, December, 1971.

ANNEX

CAPACITY OF DRUG-ORIENTED THERAPEUTIC COMMUNITIES
IN CANADA (AS RECORDED TO FEBRUARY 9, 1973)

On the basis of information gathered in the course of its previous studies of innovative services in Canada (see Appendix M *Innovative Services*) and from discussions with the headquarters and five regional offices of the Non-Medical Use of Drugs Directorate, Health Protection Branch, Department of National Health and Welfare, the Commission conducted a telephone survey in February 1973 to determine the capacity of drug-oriented therapeutic communities in Canada. For the purpose of this survey, *therapeutic community* was defined as a residential treatment program offering voluntary commitment to various individual and group therapy processes, within a drug-free milieu, to treat persons dependent on opiate narcotics, amphetamines and/or multiple non-medical drug use. So defined, these programs are distinguishable from a variety of other residential programs in Canada dealing with such programs as adolescent emotional and family disturbances and delinquency, on the one hand, and from methadone maintenance and other outpatient programs for the treatment of drug dependence, on the other. Only those residential programs with a stated policy of providing treatment for drug dependence within a drug-free setting are included in the listing of therapeutic communities in Table H.2 on page 1002. In cases where program emphasis was uncertain, programs were included only upon a finding that at least one-third of their residents were coping with a drug problem.

There appears from this survey to be a growing tendency among therapeutic communities and other residential programs to deal with a drug-related problem, other than long-term opiate narcotic dependence, as part of a broad spectrum of personal and social problems and, as such, a problem amenable to therapeutic methods not specifically drug-related through practised in a drug-free setting. Only a few of the programs listed in Table H.2, among them, "X-Kalay", "Portage", "414", "Spera" and "Narcanon", are almost exclusively concerned with drug rehabilitation.

It was determined from this survey that a total of 28 drug-oriented therapeutic communities were operating in Canada as of February 9, 1973. It should be noted that these therapeutic communities are greatly outnumbered by non-residential programs for drug users, such as outpatient counselling programs, workshops and cooperatives, communal living projects and methadone maintenance programs.

When considering the residential capacity of therapeutic communities in Canada at any one time, it is important to bear in mind that at the present

time most therapeutic community programs are in part, or wholly, dependent on one or more (usually federal) short-term grants. Until such time as long-term funding arrangements are worked out with these programs, the overall treatment capacity of therapeutic communities in Canada will be subject to rapid fluctuation.

This survey revealed that within the 28 therapeutic communities operating in Canada as of February 1973 there were 178 salaried staff, 379 residents and a maximum residential capacity (given present staff and facilities) of 634. (See Table H.2 on the following page.)

Appendix H

TABLE H.2
RESIDENTIAL THERAPEUTIC COMMUNITIES IN CANADA
(As Recorded to February 1973)

Region/ Province	Name of Program	Location	Current Staff*	Current Resi- dents	Maximum Resi- dential Capac- ity†	Average Duration of Residential Stay‡	Drug Problems Dealt With
Maritime Provinces	1. Dirnan House	Halifax, N.S.	5	9	9	1 month	M§
	2. New Options	Halifax, N.S.	8	13	20	3 months	O/A
	3. Aware House	St. John, N.B.	4	12	12	6 months	M
	4. Christian Challenge Home	Charlotte- town, P.E.I.	8	4	10	2 months	M/A#
	TOTAL.....		25	38	51		
Quebec	5. Spera Foundation	Rawdon	10	25	30	9 months	M/A O/A
	6. Portage	Montreal	13	10	100	12 months	O/A
	7. La Terre	Wotton	6	30	35	3 months	M/A
TOTAL.....			29	65	165		
Ontario	8. "GYATE" (Get Your Act Together Enterprises)	Ottawa	9	5	10	3 months	M/A
	9. Stonehenge	Guelph	5	11	13	3 months	O/A
	10. Oolagen House	Toronto	7	6	6	5 months	M
	11. Western Ontario Therapeutic Comm. Hostel	London	10	23	30	4 months	M
	12. "414" Dufferin	London	5	6	30	12 months	O/A
	13. 56 Colbourne	Oshawa	6	5	7	4 months	M/A
	14. Crossroads Farm	Windsor	6	14	14	4 months	O/A
	15. Friendship House	London	3	15	15	3 months	M/A
	16. Delisle House	Toronto	6	8	8	6 months	M/A
	17. Spera Niagara	Welland	3	7	14	9 months	O/A
	18. Twin Valley	London	6	22	36	—	M
	19. Narcanon	Toronto	4	8	16	3 months	O/A
	20. Oasis	Sudbury	6	6	6	3 months	M
TOTAL.....			76	136	205		

TABLE H.2 — (Continued)

Region/ Province	Name of Program	Location	Current Staff	Current Resi- dents	Maximum Resi- dential Capac- ity	Average Duration of Residential Stay	Drug Problems Dealt With
Prairie Provinces	21. X-Kalay	St. Norbert, Man.	10	51	80	6 months	O/A
	22. Kiazam	Winnipeg, Man.	6	8	10	2 months	O/A
	23. Point III	Edmonton, Alta.	8	20	24	2 months	O/A
	24. Help House	Calgary, Alta.	6	8	14	6 months	O/A
	25. ADAPT	Lamont, Alta.	3	3	12	—	M
TOTAL.....			33	90	140		
British Columbia	26. X-Kalay	Vancouver	7	30	40	12 months	O/A
	27. X-Kalay	Salt Spring	4	15	25	3 months	O/A
	28. Richmond Residence (Teen Challenge)	Richmond	4	5	8	4 months	O/A
TOTAL.....			15	50	73		
GRAND TOTAL.....			178	379	634		

* *Staff* refers to salaried positions only, including both those who work directly with residents and the administrative and support staff. (In practice, these distinctions tend to blur, with the same person often filling roles in each group.) In programs where residents "graduate" to positions of junior staff or assistants, such persons are not counted as staff unless salaried.

† *Maximum Capacity* refers to residential capacity only, based on current staff and physical plant. Many of the organizations listed here provide outpatient service (including post-resident, follow-up counselling) to as many or more persons as those in residence.

‡ *Duration of Stay* refers to a rough average only, not to a statistically weighted one. Most people who leave these programs do so within the first few weeks, while a very few stay on for the maximum allowable time—usually around 12 to 18 months. A minority of therapeutic communities have fixed lengths of stay which are contracted by the residents.

§ M - multiple youthful problems, including drug dependence.

|| O/A - opiates/amphetamines.

M/A - multiple drug use/amphetamines.

NOTES

1. W. H. McGlothlin, U. C. Tabbush, C. D. Chambers and K. Jamison, "Alternative Approaches to Opiate Addiction Control: Costs, Benefits and Potential," Paper prepared for the U.S. Department of Justice, Bureau of Narcotics and Dangerous Drugs, February 1972, mimeographed, p. 21.
2. E. Milligan (Director of Treatment and Rehabilitation, Narcotic Addiction Foundation of British Columbia), Personal communication to the Commission August 27, 1972.
3. Z. Thompson (Medical Officer, Edmonton Methadone Evaluation Committee, Methadone Clinic), Personal communication to the Commission, October 10, 1972.
4. S. Cohen (Alcoholism Rehabilitation Centre, Regina, Saskatchewan), Personal communication to the Commission, October 20, 1972.
5. J. Matas (Director, St. Boniface Hospital Drug Rehabilitation Program), Personal communication to the Commission, October 12, 1972.
6. A. Eversen (Director, Narcotic Dependence Program, Clinical Institute, Addiction Research Foundation of Ontario), Personal communication to the Commission, November 14, 1972.
7. M. Krakowski and R. G. Smart, "Report on the Evaluation of the Narcotic Addiction Unit's Methadone Maintenance Treatment Program," Unpublished manuscript, Project C 214, Substudy No. 492, Addiction Research Foundation, Toronto, 1972, p. 4.
8. P. R. Beck (Methadone Program, Jewish General Hospital, Institute of Community and Family Psychiatry), Personal communication to the Commission, October 19, 1972.
9. J. Huot (Director, Deuxième Ligne), Personal communication to the Commission, October 23, 1972.
10. Canada, Health Economics and Statistics Directorate, Health Programs Branch, Department of National Health and Welfare, "The Role of the General Hospital in Treatment of Alcoholism and Other Drug Addictions," mimeographed, October 6, 1972, p. 1.
11. Ibid., p. 2.
12. Ibid.

Treatment of Opiate Dependents in Federal Penitentiaries in Canada

Canadian experience with a special treatment program in a prison setting in which drug addicts are segregated from other offenders has not been very encouraging. The Fauteux Report on Remissions in 1955 recommended specialized institutions for the treatment of narcotic addiction. In accordance with this recommendation the Federal Government constructed Matsqui Institution, a medium security penitentiary, at Abbotsford, about 45 miles from Vancouver, British Columbia. It opened in March 1966. It was designed to accommodate 312 male and 128 female inmates. The planning called for a staff of 333.

A special treatment experiment with a research and evaluation component was begun at Matsqui in January 1967. Its object was to evaluate the effectiveness of an experimental treatment program developed in the Pilot Treatment Unit (PTU), a special treatment-research unit at Matsqui.¹ The effectiveness of the PTU treatment program was to be determined by comparing it with a Limited Control (LC) group which underwent the treatment program in the main institution.² The PTU treatment was more intensive and more enriched than LC treatment: it involved living together in small dormitories rather than in individual cells, as in the LC treatment, a more intensive, and presumably more effective use of group therapy than in the LC program, and a greater participation in educational courses.

The experimental program consisted of treatment periods of seven months followed by release on parole. The relative effectiveness of the PTU and LC programs was judged on the basis of a comparison of the offenders' behaviour during the two years prior to incarceration with their behaviour during the period of one and a half years following release on parole, with reference to the following matters: per cent of time legally employed; per cent of time illegally employed; and mean monthly frequency of opiate use.³

It is important to note that the comparison was between two treatment programs at Matsqui Institution, and not between prison with a treatment program and prison without one.

Brian C. Murphy, Research Officer who reported on the treatment experiment, summarized the results as follows:

1. Neither PTU nor LC treatment was significantly more effective than the other in increasing percent of time legally employed or \$value of legal earnings.
2. LC treatment was significantly more effective than PTU treatment in decreasing percent of time illegally employed and \$value of illegal earnings.
3. LC treatment was significantly more effective than PTU treatment in decreasing monthly frequency of opiate use. When opiate use was broken down into its two components, prescription opiate use and non-prescription opiate use, LC treatment was found to be significantly more effective than PTU treatment in decreasing non-prescription opiate use. However, neither PTU nor LC treatment was significantly more effective than the other in decreasing prescription opiate use.⁴

It is not clear why inmates who went through the more intensive PTU treatment had a more unsatisfactory record on release, with respect to illegal earnings and illegal opiate use, than those who went through the general or LC treatment. The results are attributed to the treatment in the institution rather than the parole supervision, which is assumed to have been more or less the same for all parolees. Murphy suggested the following hypothesis: that inmates in the more intensive PTU program acquired, as a result of the better program of group therapy and academic training, "superior applied communication and applied academic abilities"⁵ which made them more effective in illegal activity. The research officer concluded that they applied these new skills to illegal activity because they "did not have the skill, experience, and social contacts necessary to compete effectively with 'square johns' for scarce legal employment opportunities or scarce 'straight' recreational and social opportunities".⁶

A comparison of the behaviour of PTU and LC inmates before and after incarceration suggests a measure of improvement among both groups. The percentage of time legally employed increased for the LC group from 42.5% before incarceration (as compared to 33.6% for the PTU) to 61.4% after incarceration (as compared to 67.1% for the PTU). The percentage of time illegally employed dropped for the LC group from 43.7% before incarceration (as compared to 47.1% for the PTU) to 5.3% after incarceration (as compared to 22.9% for the PTU). With the LC group, the mean frequency of opiate use per month dropped from 62.3 times before incarceration (as compared to 61.9 for the PTU group) to 12.6 times after incarceration (as compared to 41.6 for the PTU).⁷

While these comparisons suggest a measure of improvement in the behaviour of the PTU and LC groups, they cannot be regarded as significant, nor the experimental treatment program as successful, in light of the number of these inmates who were returned to custody following their release on parole. The Research Officer at Matsqui informed the Commission that of

36 delinquent opiate addicts treated at Matsqui (including the 26 inmates who comprised the PTU and LC groups discussed above), 31 or 86% were returned to custody within a five-year period after their release on parole. Of the five who were not returned to custody, two were deceased due to accidents within one year of their release on parole, so that the rate of recidivism approached 100%.⁸

As mentioned above, the parole supervision was assumed by the treatment-research team at Matsqui to have been more or less the same for all parolees. The experimental treatment program was not designed to evaluate the effects of parole and other post-release treatment,⁹ nor was the Special (Parole) Narcotic Addiction Project, which involved these PTU and LC inmates, designed with an evaluative component. (See Appendix K *Parole of Heroin Dependents in Canada*.) Consequently, there is no way of determining how far the results of this treatment experiment should be attributed to the treatment program in the institution and how far to the parole supervision. Brian C. Murphy, Research Officer at Matsqui, suggested that much more could have been done to assist inmates with the process of social rehabilitation and reintegration during the parole period. He emphasized this point as follows:

If institutional training had been followed by a carefully engineered, well staffed, active programme of intervention, immediately upon release and continuing for some months thereafter, to make non-delinquent, non-addict vocational, recreational, and social opportunities readily available to parolees (including the restructuring of friendship circles around 'square johns'), the PTU subjects would probably have earned more legally, earned less illegally, and used non-prescription opiates less frequently than the LC subjects. A series of formal treatment experiments, with that kind of carefully engineered post-release intervention, would appear to be a most worthwhile enterprise.¹⁰

It should be noted that the "specialized caseload approach" to the parole of opiate dependents, which was applied throughout the treatment research programs conducted at Matsqui and was intended to provide the kind of active post-incarceration follow-up envisaged by Murphy, was discontinued without evaluation by the National Parole Service early in 1972. (See Appendix K *Parole of Heroin Dependents in Canada*.)

Although a number of the inmates in the PTU and LC groups received regular doses of methadone following their release from Matsqui on parole, the goal of the program and the criteria of success were essentially those of a drug-free program. From the data available to the researchers it was found that "... illegal employment is strongly, positively and significantly associated with consumption of illicit opiates, but illegal employment is not significantly associated with consumption of legally prescribed opiates."¹¹ This finding led Murphy to hypothesize that:

Appendix I

1. Most economic crime committed by addicts is committed mainly because the supply of satisfactory opiates is restricted to high priced bootleg supplies.
2. If opiates were made readily and cheaply available to addicts, the amount of economic crime committed by them would be sharply reduced.¹²

Not having tested these hypotheses, the Matsqui treatment experiment does not demonstrate the results that could be obtained using an institutional program and methadone as a stabilizing and transitional factor during a controlled post-release period. To date, neither the Penitentiary Service nor the National Parole Service has tested the effectiveness of a methadone maintenance program for former opiate dependents released from penitentiary. However, the Penitentiary Service is currently developing a multi-modal treatment program (described in more detail below) which may include a methadone maintenance component as suited to inmates being considered for release on temporary absence or parole; and, as we point out in Appendix K, a number of parolees are currently in methadone maintenance programs in Canada, who either entered voluntarily or were presented with the alternative of entering a methadone program or being returned to custody.

Matsqui continues as a medium security institution for opiate-dependent offenders and as a treatment unit; but its inmate population is now composed of non-addicts as well as addicts, and the experimental evaluation of its treatment programs is being done under the auspices of the regional research unit at New Westminster, British Columbia. In the fall of 1972 Matsqui had 330 inmates (or virtually 98% of its capacity),¹³ of whom approximately 100 were "addicts".¹⁴ It continues to employ group therapy, but this is now on a voluntary basis. There has been an increasing emphasis on short-term release into the community in the form of day parole (see Appendix K *Parole of Heroin Dependents in Canada*) or temporary absence,¹⁵ but there has been a reduction in the amount of such releases in accordance with a departmental re-examination of policy on this matter. To date, there has not been an evaluation of these programs as forms of correctional treatment of delinquent opiate dependents.

The majority of federal penitentiaries in Canada use the services of community-based self-help programs which employ counselling and individual and group therapy techniques to bring about a change in the life style of delinquent opiate dependents. Among the self-help programs operating in penitentiaries in Canada are: the "Centre Group" in Kingston, Ontario; the "Circle Group", an organization of 15 former drug dependents incarcerated in Collins Bay Institution, Kingston, Ontario; the Alcoholism and Drug Foundation of Manitoba working with inmates in Stony Mountain Institution near Winnipeg; "ADCON", an organization working with inmates in the Saskatchewan Institution in Prince Albert; and "Transcendental Meditation" and the "Seven Step Movement", both groups working in British Columbia Penitentiary at New Westminster.

At the present time at least one physician in each federal penitentiary is authorized by the Minister of National Health and Welfare to administer methadone as an aid in withdrawal of inmates dependent on an opiate narcotic at the time of their admission to a penitentiary.

The Canadian Penitentiary Service is currently developing a multi-modal program for the treatment of delinquent opiate dependents incarcerated in the Regional Medical Centre at Abbotsford, British Columbia—a 138-bed, maximum security penitentiary adjacent to Matsqui Institution. This program, a developmental project to include individual and group therapy and possibly a methadone and opiate antagonist maintenance component as suited to individual inmates being considered for release on temporary absence or parole, will be developed in consultation with the Department of National Health and Welfare. It is expected that the program will be operational by the fall of 1973. It should be noted, however, that the Regional Medical Centre is primarily concerned with the treatment of acute psychiatric problems of adjustment to the custodial setting, and that as a result, only a small number of incarcerated drug dependents will be affected by this program.

NOTES

1. B. C. Murphy, *A Quantitative Test of the Effectiveness of an Experimental Treatment Programme for Delinquent Opiate Addicts*, Department of the Solicitor General of Canada, Research Centre Report 4 (Ottawa: Information Canada, 1972), p. 1.
2. *Ibid.*, p. 16.
3. *Ibid.*, p. 17.
4. *Ibid.*, p. 25.
5. *Ibid.*, p. 31.
6. *Ibid.*, p. 29.
7. *Ibid.*, p. 22 (Table 6).
8. B. C. Murphy, personal communication to the Commission, December 22, 1972.
9. Murphy, *A Quantitative Test*, p. 16.
10. *Ibid.*, p. 31.
11. *Ibid.*, p. 34.
12. *Ibid.*
13. J. R. G. Suprenant (Chief, Secretariat, Canadian Penitentiary Service), personal communication to the Commission, October 10, 1972.
14. D. Craigen (Director, Medical Services, Canadian Penitentiary Service), personal communication to the Commission, August 30, 1972.
15. Temporary absence is provided for inmates of federal penitentiaries in section 26 of the *Penitentiary Act*, R.S.C. 1970, c. P-6 as follows:

Where, in the opinion of the Commissioner [of Penitentiaries] or the officer in charge of a penitentiary, it is necessary or desirable that an inmate should be absent, with or without escort, for medical or humanitarian reasons or to assist in the rehabilitation of the inmate, the absence may be authorized from time to time

 - (a) by the Commissioner, for an unlimited period for medical reasons and for a period not exceeding fifteen days for humanitarian reasons or to assist in the rehabilitation of the inmate, or
 - (b) by the officer in charge, for a period not exceeding fifteen days for medical reasons and for a period not exceeding three days for humanitarian reasons or to assist in the rehabilitation of the inmate.

Temporary absence for inmates of provincial penal institutions is provided for in section 36 of the *Prisons and Reformatories Act*, R.S.C. 1970, c. P-21 as follows:

Where, in the opinion of an official designated by the Lieutenant Governor [in Council] of the province in which a prisoner is confined in a place other than a penitentiary, it is necessary or desirable that the prisoner should be absent, with or without escort, for medical or humanitarian reasons or to assist in the rehabilitation of the prisoner at any time during his period of imprisonment, the absence of the prisoner may be authorized from time to time by such official for an unlimited period for medical reasons and for a period not exceeding fifteen days for humanitarian reasons or to assist in the rehabilitation of the prisoner.

Probation for Heroin Dependents in Canada

THE LAW AND ADMINISTRATION WITH RESPECT TO PROBATION

Probation is provided for in the *Criminal Code* of Canada,¹ but it is administered by provincial probation services.² Unlike the case of parole, there is no federal probation service.

THE CANADIAN COMMITTEE ON CORRECTIONS

The Canadian Committee on Corrections spoke strongly in favour of probation, which it defined as follows:

... a disposition of the court, whereby an offender is released to the community on a tentative basis, subject to specified conditions, under the supervision of a probation officer (or someone serving as a probation officer) and liable to recall by the court for alternative disposition if he does not abide by the conditions of his probation.³

"The use of probation", said the Committee, "should be expanded as widely as possible."⁴ The Committee noted, however, that "there is a serious shortage of qualified officers in probation."⁵

PROVISIONS OF THE CRIMINAL CODE

Probation is provided for in section 663 of the *Criminal Code* as follows:

663. (1) Where an accused is convicted of an offence the court may, having regard to the age and character of the accused, the nature of the offence and the circumstances surrounding its commission,

- (a) in the case of an offence other than one for which a minimum punishment is prescribed by law, suspend the passing of sentence and direct that the accused be released upon the conditions prescribed in a probation order;

- (b) in addition to fining the accused or sentencing him to imprisonment whether in default of payment of a fine or otherwise, for a term not exceeding two years, direct that the accused comply with the conditions prescribed in a probation order, or
- (c) where it imposes a sentence of imprisonment on the accused that does not exceed ninety days, order that the sentence be served intermittently at such times as are specified in the order and direct that the accused, at all times when he is not in confinement pursuant to such order, comply with the conditions prescribed in a probation order.

The conditions which are deemed to be included in a probation order, and those which may be included, in the discretion of the court, are provided for in subsection 2 of section 663 as follows:

- (2) The following conditions shall be deemed to be prescribed in a probation order, namely, that the accused shall keep the peace and be of good behaviour and shall appear before the court when required to do so by the court, and, in addition, the court may prescribe as conditions in a probation order that the accused shall do any one or more of the following things specified in the order, namely,
- (a) report to and be under the supervision of a probation officer or other person designated by the court;
 - (b) provide for the support of his spouse or any other dependents who he is liable to support;
 - (c) abstain from the consumption of alcohol either absolutely or on such terms as the court may specify;
 - (d) abstain from owning, possessing or carrying a weapon;
 - (e) make restitution or reparation to any person aggrieved or injured by the commission of the offence for the actual loss or damage sustained by that person as a result thereof;
 - (f) remain within the jurisdiction of the court and notify the court or the probation officer or other person designated under paragraph (a) of any change in his address or his employment or occupation;
 - (g) make reasonable efforts to find and maintain suitable employment; and
 - (h) comply with such other reasonable conditions as the court considers desirable for securing the good conduct of the accused and for preventing a repetition by him of the same offence or the commission of other offences.

TREATMENT AS A CONDITION OF PROBATION

It is to be noted that paragraph (c) above refers to alcohol but not to other drugs, and that the subsection does not explicitly contemplate submission to medical treatment as a condition of a probation order. A condition to abstain from the use of other drugs, including submission to regular testing for the presence of such drugs in the body, would appear to fall within the general terms of paragraph (h). It could also be argued that attendance

at a treatment facility and submission to some treatment of choice would be a reasonable condition for securing the good conduct of the accused and preventing a repetition by him of the same offence or the commission of other offences. There may be some question as to whether a condition calling for submission to a specific form of treatment, such as methadone maintenance, without the consent of the accused, could be considered reasonable within the meaning of paragraph (h), since it involves the very serious decision to persist with and confirm the dependence on an opiate narcotic.

The extent to which treatment may be validly imposed as a condition of a probation order raises the question of how far the Parliament of Canada may provide for medical treatment as an incident of its criminal law jurisdiction. This issue is considered to some extent in Appendix F.1 *The Constitutional Framework*. The discussion there is directed particularly to the implications of the sentence to custody for treatment for an indefinite period which is provided for by Part II of the *Narcotic Control Act*, but which has never been put into force. A question is raised as to whether these provisions are sufficiently related to the issue of criminal responsibility to be a valid criminal law disposition of a case. The indeterminate nature of the sentence, which, in a case of simple possession (the offence most closely related to "addiction"), could end up being considerably longer than the maximum which could have been imposed for the offence under Part I, is clearly not directed to the nature of the particular offence of which the accused has been convicted, nor to his rehabilitation qua criminal offender, but rather to the cure of the medical condition of "addiction". Nor do the provisions for compulsory treatment suggest any necessary relationship between the "addiction" and the crime of which the accused is convicted. The "addiction" could be to the use of a kind of drug different from the one involved in the offence of which the accused was convicted. An attempt might be made to justify the provision for sentence to custody for treatment for an indeterminate period as a kind of preventive detention, but in fact Part II makes special provision for preventive detention where there has been a *prior* conviction for an offence of trafficking or importation. Part II clearly indicates that it does not consider preventive detention to be appropriate for the offence of simple possession, much less a first offence of this kind. There is also doubt, despite the close connection between "addiction" and crime, that Parliament's power to legislate for the prevention of crime would give it power to provide for compulsory treatment of "addiction". This would amount to a general power to provide for compulsory treatment, independent of the existence of a criminal offence. The implications of such a power are very far reaching and would logically extend to compulsory treatment for certain kinds of mental disorder.

Many of these points may simply be peculiarities of the provisions in Part II of the *Narcotic Control Act* which render them particularly vulnerable. There can be no doubt that Parliament may validly provide for the

kinds of treatment to which the inmates of federal penitentiaries may be subjected. If an offender is sentenced to imprisonment he can be validly subjected to a therapeutic regime such as that applied in the Matsqui Institution (see Appendix I). This is clearly a form of compulsory treatment within the jurisdiction of Parliament. The offender is sentenced to a term of imprisonment which is considered appropriate in the particular case, and in the exercise of its jurisdiction with respect to penitentiaries, the Federal Government determines the particular regime which he shall undergo. In the course of imprisonment for a particular offence the correctional authorities attempt to deal with a condition that is related to the offender's criminal behaviour. That condition, however, is not the basis of the sentence, and the total possible length of the sentence is not determined by the possibility of success in treating that particular condition. It is not the notion of "treatment" as such that raises questions about Parliament's jurisdiction. Clearly, Parliament has jurisdiction to provide for medical treatment in federal penitentiaries and in certain other specific areas of federal jurisdiction, such as the armed forces and immigration. Moreover, all correctional disposition can be considered to be "treatment" in a broad sense. Imprisonment can be considered to be a form of "treatment". (See *Treatment Report*, p. 10.) The real issue is whether the object that is sought by the disposition is a valid criminal law object, or at least one that is properly incidental to the criminal law jurisdiction, or whether it is an object that falls outside federal jurisdiction. Obviously, a strong case can be made for the argument that the treatment of the offender's addiction is a necessary part of his rehabilitation qua criminal offender. We merely say there are some legitimate doubts as to how far this may be pressed so as to justify what could amount to a life sentence for a crime for which the ordinary maximum is seven years. Sentence must be appropriate not only to the offence but also to the offender. This is what justifies taking the previous record and other aspects of the offender's character and circumstances into account. At the same time, the fact that a person has been convicted of a criminal offence does not give Parliament the right to deal with any aspect of his condition to any extent it chooses.

If probation for a certain limited period is considered to be appropriate in a certain case, having regard to the nature of the offence and the character of the offender, there would appear to be no reason why a court should not be able to attach the condition that the offender shall submit to some treatment in an attempt to cure his dependence.

In any event, one should not stress too much the compulsory character of such a condition, since in practice the offender should be asked to agree to follow a course of treatment as a condition of being placed on probation. In the opinion of treatment experts such agreement is essential if there is to be the proper motivation. The alternative of imprisonment undoubtedly exerts a certain compulsion, but the willing cooperation of the offender must be enlisted as much as possible.

The Canadian Committee on Corrections, which spoke of the probation "contract", stressed the importance of obtaining the offender's consent to probation in the following terms:

There is some disagreement among correctional officials as to whether the consent of the offender should be required before a probation order is made. Offenders are not given a choice in relation to other dispositions by the court. It may be that some offenders who refuse probation would learn to accept it if it were imposed without their consent. However, the Committee is of the opinion that probation can be most effective if the offender understands and accepts what is involved. When he signs the order he commits himself to cooperation.

The Committee recommends that before issuing a probation order the judge or magistrate explain the implications and conditions of the order to the offender; that a copy of the probation order signed by the judge or magistrate be served on the offender; and that the offender be asked to endorse the original order to the effect that a copy has been served on him, that he understands its terms and conditions, and that he agrees to abide by them.⁶

SANCTION FOR FAILURE TO COMPLY WITH A PROBATION ORDER

Wilful failure or refusal to comply with a probation order is an offence punishable on summary conviction by imprisonment for not more than six months or by a fine of not more than \$500, or by both. If a probationer is convicted of this offence or any other offence, he may in addition to the punishment for such offence, be required to appear before the court that made the probation order, and after hearing, such court may, if the probation order was granted on suspended sentence, revoke the order and impose any sentence that could have been imposed for the original offence, or make such changes in the probation order as are deemed desirable or extend the period for which the order is to remain.⁷

CANADIAN EXPERIENCE WITH OPIATE DEPENDENTS ON PROBATION

The following review is based on a study by the Commission of the effectiveness of a methadone maintenance program for probationed heroin users and discussions with correctional and treatment personnel in Canadian cities with a relatively high concentration of heroin use.

British Columbia

Probation, accompanied by urinalysis to monitor illicit drug use or methadone maintenance, has been experimented with to some extent in Vancouver in cooperation with the Narcotic Addiction Foundation. Impressions of the results have varied considerably.

In a submission to the Commission in April 1971, Mrs. Miriam Bent, Senior Probation Officer in Vancouver, spoke very favourably of the use of

probation to encourage opiate-dependent offenders to accept treatment.⁸ She described the change in thinking in the late 1960s which influenced certain judges to try probation with treatment conditions as an alternative to a sentence to penitentiary so that the offender could be placed in the Matsqui Institution. (See Appendix I.) In many cases young offenders had been given sentences of two years or more so that they could be placed in Matsqui. Judges in Vancouver were persuaded to consider the alternative of making use, on probation, of the local treatment facilities of the Narcotic Addiction Foundation.

Mrs. Bent pointed out that the Foundation was at first reluctant to be involved in a cooperative relationship with law enforcement for two reasons: they feared that voluntary patients might cease to come to them if they were known to be cooperating with law enforcement agencies, and, secondly, as a treatment facility, they did not like the idea of having to play a role in the enforcement of the conditions of probation that might lead to criminal law sanctions against patients.

The experiment consisted of placing certain offenders on probation on condition that they would report to the Foundation for urinalysis or accept treatment in the form of methadone maintenance. Mrs. Bent gave her impression of the success of the experiment as follows:

... Apparently the "success rate" (remaining heroin-free) has been better with those individuals who are under Court order than the general population attending the Narcotic Foundation.

The reasons for greater success amongst individuals attending the Foundation as a result of a Court directive appear to this writer as follows: Without any doubt the threat of Court action (incarceration) plays a role in the person's initial adherence to the treatment program. Second, the fact that there is a concerned but authoritarian individual counselling the person (in this case a probation officer) seems to be valuable. The Narcotic Foundation has its counsellors, and these counsellors seem to be quite well accepted by the persons attending the Foundation, but the counsellors tend to be more lenient and less demanding of absolute adherence to the program than do the probation officers. The outcome of this type of controlled attendance at the Narcotic Foundation seems to either be immediate failure by the individual or success that is initially demanded from external bodies (Court, probation officer, Narcotic Foundation) but later internalized as the individual sees himself succeeding in the program plus having positive results in other aspects of his life (employment, marital situation, etc.).⁹

Mrs. Bent estimated that the program was successful "with easily 80% of the individuals tried on it".

The manner in which offenders were referred to treatment was as follows. If the accused was before the court on a charge involving heroin, or if the judge learned that the accused was a heroin dependent, he would often advise the accused that he or she should go to the Narcotic Addiction Foundation immediately and refer the case to the Probation Service for a pre-sentence report. In other cases probation officers would often suggest to the

accused that it would be to his advantage to go to the Foundation, become admitted to their program, and show the court he was serious in his intention to come to grips with his heroin dependence by becoming heroin-free before his next court appearance. During the remand for pre-sentence report the accused would be able to show some attempt at rehabilitation. If some progress were indicated the courts would often adjourn the case for three or four weeks to allow the accused to show a positive pattern of compliance with the program. If the offender was able to become heroin-free during this remand, most courts would suspend sentence and place the accused on probation.¹⁰ The probation order usually contained the condition: "Submit to urinalysis at such times as required by your probation officer, a positive test to constitute a violation of the probation order."

The Commission made a study of the records of 75 heroin users placed on probation and referred to the Narcotic Addiction Foundation in this manner in Vancouver between September 4, 1968 and July 15, 1971.¹¹ Of the total of 75, 23 had probation orders for a term of one year or less; 31 had orders for two years, and 21 had orders for three years.

Conditions for termination of probation were as follows: commission of a new offence; numerous positive urinalyses (showing illicit drug use); and breach of one of the other conditions of the probation order. For probationers whose probation was terminated because of "numerous positive urinalyses" the mean number of positive urinalyses for the males was 4.73 and for the females 5.06. As of August 1971, four of the 75 probationers had successfully completed their probation period. Probation had been terminated for 11 of the probationers because they had committed a new offence. On three occasions probation had been terminated because the probationer had breached one of the other conditions of probation. On six occasions probation had been terminated solely on the basis of the probationer showing numerous positive urinalysis results. Finally, in six cases probation was terminated because the probationer had shown numerous positive urinalyses as well as violating one of the other conditions of probation.

The Commission's research staff drew the following conclusions from this study:

1. We cannot conclude without further study that certain types of addicts are better disposed to the program or that they should be selected on the basis of certain criteria. We can say, however, that probationers who can be classified as "skilled" have a better chance for success with methadone treatment than those probationers who are "unskilled".
2. It appears from our data that a probation order for a two-year period is the optimum duration for success on the program. The nature of the analysis and the type of data that was made available to us does not allow us to state why this should be the case but the author believes that this phenomenon is due, to a large extent, to the interaction that occurs between the probationer, the probation officers, and the NAF counsellors.
3. What we can say in terms of overall success of the program is that 51, or 68%, of the addicts are responding successfully and are either con-

tinuing in the program or have successfully completed their probation period. From our data it appears that the "rate of success" is slightly lower than the estimated rate of success as reported by Mrs. Bent of the Vancouver Probation Service. A very significant proportion of the probationers have remained out of jail, and have remained off heroin.

4. It is important to note that both the probation officers of the Vancouver Probation Service and the judges of the Vancouver Provincial Court recognize the futility of incarcerating most heroin offenders. In order to give the methadone program a fair chance the courts have tolerated a substantial amount of "backsliding", allowing the probation officer a degree of discretion in not reporting every positive urinalysis test if other social indicators are satisfactory. In general they believe that the innovative methadone program for heroin users is a successful, if not superior, alternative to incarceration which merely involves the user in the classical "revolving door" situation. The results of our analysis tend to support this view.¹²

Two observations are pertinent here: while 68% of the probationers are said to have been successful, only four of the 75 had successfully completed their probation period; secondly, the success was a reflection in some measure of what Mrs. Bent referred to as a policy of "minimal leniency" towards abstinence as verified by urinalysis. Despite the stipulation in probation orders that one positive test shall constitute a violation, the records of probationers whose probation was terminated because of "numerous positive urinalyses" show a mean of about five positive urinalyses. Thus the view which one takes of the relative success of the program depends upon how strictly one feels the conditions of probation should be enforced.

Other probation officers have expressed a less favourable view of the experience with probationers on treatment at the Foundation. Mr. Larry Hoff, Senior Probation Officer in Vancouver, has expressed the opinion, on the basis of routine analyses of weekly urinalysis reports from the Foundation, that an almost constant 70% "do not respond" to the treatment program at the Foundation. He further expressed the opinion that in the long run an even greater percentage would relapse to heroin use or be apprehended for a subsequent offence. He estimated that at the very best the success rate of probationer addicts would not exceed seven or eight per cent.¹³

It is clear that the correctional officers take a stricter view of positive urinalysis (at least as a measure of failure) than treatment personnel, although they are also obliged to show some leniency and flexibility in using it as a ground for termination of probation or parole. In the study made for the Commission of 75 probationers on methadone maintenance, success was determined by continuation in the treatment program and not by the actual degree of lapse which might justify termination of treatment or probation. It would appear that Mr. Hoff is talking about the percentage who comply strictly with a probation condition that makes one positive urinalysis a ground for termination.

The criteria of success applied by the Probation Service in British Columbia to heroin dependents on probation have been described as follows: "abstention from the use of heroin and any other illegal drug; curtailing of all criminal activity and undesirable associations; favourable progress towards becoming a productive member of society including such areas of responsibility as employment, family, and constructive leisure time activities; and general attitude conducive to rehabilitating oneself, and towards attaining adequate feelings of self-esteem."¹⁴

Probationers who "fail to respond to treatment" and who are dropped from the Foundation's treatment program will be returned to court on a breach of probation if the conditions of the probation order permit and the necessary proof of a violation can be made, or they will be given a negative rating on the probation records and a reduced priority in the probation officer's caseload (referred to as "deadwood"), with the consequence that if their probation terminates and they appear in court again on another charge the probation officer will give a negative report on them. The likelihood in such cases is that they will be sentenced to a term of imprisonment.

The policy of placing probationers on urinalysis or methadone maintenance at the Foundation has been a source of some dissatisfaction to both the correctional and treatment personnel. The Foundation is prepared to take on all probationers for urinalysis to monitor illicit drug use, but it chooses to be completely independent in the selection of persons for methadone maintenance. It does not wish to be obliged by a court decision to accept a person whom it considers unsuitable for methadone maintenance. On the other hand, probation officers who feel obliged to take a reasonably strict view of a violation of the conditions of probation are concerned not only by the extent of illicit drug use shown by the weekly reports of urinalysis from the Foundation but also by the unwillingness of the Foundation staff to testify in court to support the weekly report of urinalysis as a ground for termination of probation.

The point of view of a treatment professional is expressed in the following statement to the Commission:

The parole services and the probation services are law enforcement agencies. We are not. This distinction has to be very clearly understood. We ought not to try any kind of law enforcement with the patient in treatment, even though he is a probationer.

A clinical therapist would find himself in conflicting roles if he had the power to return a person to prison at the same time as actually trying to keep him out. . . . A patient-therapist relationship could go on for years given such conflicting roles without any success.

Even though the courts, or probation services or parole services assign, or make a condition of release that a person attend the Foundation treatment centre, we are under no obligation whatsoever to accept the patient.¹⁵

As of October 31, 1972 the Vancouver office of the British Columbia Corrections Service was aware of 194 cases of heroin dependence and an

estimated 50 non-dependent experimenters with heroin among its total case-load of 973 probationers. Of the total number of heroin users on probation in Vancouver, 24 were attending the Narcotic Addiction Foundation for methadone maintenance therapy. (Of these, 13 were judged by the Probation Service, on the basis of a weekly urinalysis report, to be responding favourably, and 11 to be not responding favourably—that is, an apparent success rate of 54%.) Of a total of 6,129 persons on probation in British Columbia on October 31, 1972, an estimated 325 were dependent heroin users and an estimated 100 were non-dependent experimenters with heroin.¹⁶

There has been a steady decrease over the last two years in the number of probationers in Vancouver attending the Narcotic Addiction Foundation for methadone treatment. During 1971 an average of 45 probationers attended the Foundation each day. That average dropped to 35 during the first half of 1972. Between June 1, and October 31, 1972, a total of 54 probationers attended the Foundation, with an average daily attendance of 28. Considered over the full five-month period, 13 of these were judged by the Probation Service, on the basis of weekly urinalysis reports, to have responded favourably and 41 to have responded unfavourably to methadone treatment—an apparent success rate of 24%.¹⁶ During the last three months of 1972 the average daily attendance of probationers at the Foundation was reduced by the Probation Service to 23.

The conclusion that we draw from our discussions concerning this reduction is that the Probation Service would rather have a heroin-dependent probationer on their rolls without methadone maintenance than continuing with a poor record of urinalysis on the rolls of the Foundation. Repeated evidence of illicit drug use in weekly urinalysis reports is an embarrassment to the Probation Service because it invites some action, particularly in view of the condition in probation orders stipulating that a positive urinalysis shall constitute a violation of probation. Probation officers also feel that they have less control over probationers when they come under the jurisdiction of treatment facilities.

In an attempt to resolve this conflict, the Probation Service has recently persuaded a number of courts in Vancouver to require, as a condition of probation, that a probationer surrender himself to the custody of any police officer who has reasonable and probable grounds to believe that he is engaging in illicit drug use contrary to the conditions of the order and to submit to urinalysis testing by the police department. The Probation Service must be notified by the police of a positive analysis. A specimen of a probation order containing this condition, as well as the instructions to the Vancouver City Police appear on pages 1026 and 1027, respectively. This procedure gives the Probation Service a means of monitoring and enforcing compliance with a probation order by urinalysis, the validation of which, for the purpose of enforcement of the condition by the Court, is not dependent on treatment personnel.

Special conditions of probation for persons convicted of simple possession of heroin and placed on probation in Vancouver during 1971 and 1972. The British Columbia Corrections Service provided the Commission with the precise wording of special conditions of probation for 76 persons convicted of simple possession of heroin and placed on probation in Vancouver during 1971 and 1972. A tabular analysis of these special conditions is presented in Annex 3 on page 1028. These 76 probation cases were selected at random from probation officers' files in Vancouver and are considered to be a representative sample.

Forty of these 76 probation orders contained a condition with respect to treatment for drug dependence. In 18 (24%) of these cases, the court required the probationers to participate in, and cooperate with, a specific treatment program; in the remaining 22 cases, the degree of the probationer's participation in a treatment program was left to the discretion of a Probation Officer. In no case was a probationer required by the courts to participate in a methadone maintenance program, per se. This may reflect an assumption on the part of the courts that probationers required to attend the Narcotic Addiction Foundation would be engaged in methadone maintenance therapy; it may reflect the courts' deferral of judgment as to the suitability of individual probationers for methadone maintenance therapy to medical practitioners; or it may reflect doubt by the courts as to their authority to require as a condition of probation that an individual cooperate in a treatment regime involving dependence on an opiate narcotic.

The most common conditions in these 76 probation orders were those requiring probationers to submit to urinalysis testing as directed by their probation officers (42 or 55.7%) and those forbidding probationers from associating with known drug users and sellers (34 or 44.8%). These conditions clearly reflect the courts' desire to control illicit drug use and possible criminal associations among probationed heroin users.

Alberta

In Edmonton the courts have not to date required as a condition of probation that a probationer known or suspected of using heroin submit to urinalysis testing, nor have they required as a condition of probation that a person enter a methadone maintenance program.

In the fall of 1972 there was no special policy in the Edmonton Probation Office for the control and treatment of heroin users on probation. A request had been made, however, for additional staff to constitute a special drug unit that could give closer attention to this problem. Mr. G. D. Fralick, the Chief Probation Officer in Edmonton, had diagnosed the need in the following terms:

The drug problem offers no easy solution. Generally speaking, people addicted to heroin require a great deal of time and expertise to plan and assist in the treatment program. It becomes obvious that if the Courts con-

tinue to place drug offenders under our supervision, we must become either directly or indirectly involved in a treatment program

... I feel that drug offenders can be very time consuming and if we are to become involved in intensive counselling, it becomes apparent that we must reduce our caseloads and to achieve this it is essential that we increase our staff.

... I would hope that people assigned to the drug unit, so-called, would become specialists within their field and that we would be in a position to provide them with adequate training.¹⁷

An increase in staff was granted, and it was contemplated that there would be consultations with the courts to determine on an effective policy for the use of probation in conjunction with local treatment services.

At the end of October 1972 the probation office in Edmonton informed the Commission that of a total caseload of about 1,550 probationers convicted of all types of offences, the estimated opiate narcotic involvement was as follows: on methadone maintenance—19; using heroin presently—45; past users of heroin—64; suspected users of heroin—35. It was also noted that of the total number of pre-sentence reports requested by the courts in Edmonton, the proportion of those involving drug-related offences had steadily increased as reflected in the following percentages for a four-month period in 1972: July—11.5%; August—13.1%; September—27.5%; October—32.9%.¹⁸

Judged in terms of completion of probation without the intervention of a sentence for violation, the probation program in Alberta appears to be a successful one. As of December 31, 1972 there was a total of 4,049 adult probationers under active supervision in Alberta. During 1972, a total of only 181 reported violations of probation were acted upon by the courts.¹⁹ For the reasons indicated above, we do not have a basis for estimating the rate of success with heroin dependents on probation in Edmonton; however, based on the results in other provinces, it is felt that the success with opiate dependents on probation in Edmonton would be much less than the success of the overall probation program in the Province.

A probation officer in Edmonton estimated that 60–80% of officers' time is spent in the preparation of reports, with insufficient time left for innovation and effective casework, including adequate follow-up of probationers in the community.

Manitoba

In October 1972 the Assistant Director of Probation Services, Department of Health and Social Development, Manitoba, reported that of a total caseload of 1,250 adult and juvenile probationers in Winnipeg, only six admitted to regular heroin use, and only twelve to occasional use. Because of the reluctance on the part of some probationers to admit to drug use, he believed that the actual number of users on probation is probably considerably

higher. It is not the practice of the Manitoba Probation Service to monitor suspected drug users by urinalysis. Of the six who admitted to regular use, two were in a federal institution, two were on a regular methadone program, and two were on a somewhat irregular methadone program.²⁰

Ontario

At the end of October 1972, the Probation and Aftercare Service of Ontario was aware of 24 regular heroin users and 42 occasional heroin users among its total active caseload of 3,778 probationers in Metropolitan Toronto. Seventeen of the regular users were in a methadone maintenance program, 16 of them at the Addiction Research Foundation of Ontario. Three probationers attended the Foundation for urinalysis at the direction of a probation officer.

The Director of the Narcotic Dependence Program, Clinical Institute, Addiction Research Foundation, estimated that in the past three years there had been approximately 12 to 15 opiate dependents referred to the Foundation by courts in the Toronto area. The probation order in these cases usually requires that the person "attend the Addiction Research Foundation and cooperate with its program".

The Foundation does not routinely report the results of urinalysis to probation officers in Toronto. They do, however, cooperate with the probation office and the courts on behalf of persons whom they feel have benefited or would benefit from methadone maintenance. They will use urinalysis reports on behalf of dependents in court. The Director could not recall any court referrals to the Foundation for urinalysis alone.

The courts in Metropolitan Toronto do not request a pre-sentence report on as many as 50% of the individuals placed on probation. The vast majority of probationers are ordered to report to their probation officer only once a month, so that a probationer could be using heroin for long periods without detection. The probation service doubted that they knew anything like the full number of opiate dependents or occasional users on their rolls in Toronto.

If heroin use is definitely established in the course of a pre-sentence investigation, a probation officer will bring it to the attention of the court. How the court will respond will depend on the attitude of the particular judge. There is no unanimity among the judges as to how to deal with heroin use. Because heroin use necessarily involves the criminal conduct of simple possession, judges are sometimes reluctant to make a finding of such use or dependence without very clear evidence.

Probation officers in the Toronto area expressed the opinion that most of the police and the courts are not treatment oriented. To their knowledge there had never been a probation order containing a condition that the probationer submit to daily urinalysis. They would not recommend to the courts

a condition of attendance at the Addiction Research Foundation in the absence of an agreement by physicians at the Foundation to accept the individual for treatment. To date, however, there has not been consultation at the official level between the Probation Service and treatment officials to determine the kind of cooperation that can be developed. The Probation Service was able to provide little information on the results with heroin dependents on probation because they have not had specialized caseloads for dealing with such offenders.

Probation officers in Toronto said that they lacked the funds and the staff for a proper use of probation in conjunction with treatment services to deal more effectively with heroin dependence among probationers. They expressed a need for a more intensive diagnosis of individuals at the court level. Pointing out that the Probation Service is not involved until a person has come into contact with the law, and that probation officers ordinarily have two weeks, at most a month, to prepare a pre-sentence report, they felt that if heroin dependence were disclosed during the pre-sentence investigation, ideally that would be the time for bringing the offender into contact with treatment facilities for medical diagnosis. This would require close consultation and collaboration between the court, the Probation Service and the treatment professionals. The pre-sentence report would contain not only the social and criminal background of the individual but, where indicated, a medical diagnosis as well, answering such questions as "Should the offender be hospitalized? Should he be placed on methadone maintenance?"

The terms of the probation order determine the kind of behaviour that can be invoked as a violation of probation. Most offenders who are returned to court for a breach have failed to report to their probation officer as required or have been convicted of another offence. Other grounds are seldom invoked. The probation officers stress that unlike the case of parole, in which suspension or revocation is determined by the National Parole Board without appeal to the courts, a violation of probation must be brought before a court as a formal charge to which the probationer may plead not guilty and submit a defense. As probation officers put it, the procedure is more "legalistic" than it is in the case of parole and requires more care in the choice of grounds and the submission of proof. Of a total of 29,211 probationers under supervision in Ontario during 1971, 2,920 (10%) were reported for a violation of probation. An undetermined proportion of these, believed to be comparatively small, were permitted to conclude their probation without sentence.²¹

Special conditions of probation for persons convicted of simple possession of heroin and placed on probation in Toronto during 1971 and 1972. The Ontario Ministry of Correctional Services provided the Commission with the precise wording of special conditions of probation for 38 persons convicted of simple possession of heroin and placed on probation in Toronto during 1971 and 1972. A tabular presentation of these special conditions

is contained in Annex 3 on page 1028. These 38 probation cases, selected at random from the files of the Probation Service in Metropolitan Toronto, are considered to be a representative sample.

Twenty-eight of the 38 probation orders contained a condition with respect to treatment for drug dependence. In only seven of these orders, however, did the court require attendance at, and cooperation with, a specific treatment program. In 15 of these cases the degree of participation in a treatment program (and in 11 of these, the program itself) was left to the discretion of the probation officer; and in the remaining six cases, neither the treatment program itself nor the expected degree of participation on the part of the probationer was specified by the court.

In sharp contrast to judicial practice in Vancouver, British Columbia, none of these probation orders contained a condition requiring submission to urinalysis testing for illicit drug use.

Quebec

In November 1972, of a total of approximately 700 probationers under supervision of the Adult Probation Service in Montreal, three were known to be using heroin regularly. One of these was attending a treatment clinic once or twice a month. Probationers were not required by the courts or the Probation Service to submit to urinalysis testing.

It is estimated that less than 50 per cent of persons placed on probation have been investigated by the Probation Office in Montreal prior to sentence. At least 80 per cent of the probationers in Montreal are required to report once a month. The remainder report more or less often.²²

Nova Scotia

In January 1973 the Adult Probation Service in Halifax informed the Commission that of a total caseload of approximately 500 probationers, three were known to have used heroin in the past but were not, to their knowledge, using at that time. The Probation Service could recall only one person being placed on probation following conviction for simple possession of heroin; and although there were no special conditions in his Probation Order, the Court instructed him to take treatment at the Nova Scotia Hospital.²³

The present policy of the Adult Probation Service with respect to probationers who have drug-related problems (including drug dependence) is to refer them to the Nova Scotia Commission on Drug Dependency. In certain cases, a "case conference" will be held to develop a suitable program of treatment for probationers having a drug-related problem. A case conference will involve a representative of the Commission on Drug Dependency and an officer in the Adult Probation Service, and could also involve a psychiatrist, a family doctor, a member of the police force or a social worker. The first conference of this kind was held in Halifax on January 26, 1973.²⁴

ANNEX 1

Specimen Probation Order

Form 44(b)

Information No.

PROVINCIAL COURT OF BRITISH COLUMBIA

PROBATION ORDER

CANADA
 PROVINCE OF BRITISH COLUMBIA
 CITY OF VANCOUVER

WHEREAS on the day of A.D., 19 , at the City of Vancouver,

hereinafter called the "accused" (pleaded guilty to the charge that)

at the City of Vancouver on the day of March, A.D., 19 , did unlawfully possess a narcotic, to wit, Diacetylmorphine (Heroin), CONTRARY TO THE PROVISIONS OF THE NARCOTIC CONTROL ACT

contrary to the form of the Statute in such case made and provided:

AND WHEREAS on the day of A.D., 19 , the court adjudged that the passing of sentence upon the accused be suspended and that the said accused be released upon the conditions hereinafter prescribed:

NOW therefore the said accused shall, for the period of from the date of this order, comply with the following conditions, namely; THAT the said accused shall keep the peace and be of good behaviour and appear before the court when required to do so by the court, and in addition,

1. Report in person to the probation office at least one a month or in such manner as directed by his probation officer.
2. Notify his probation officer within 24 hours of any change in address or employment.
3. Make reasonable efforts to find and maintain employment or attend a bona fide educational or vocational training program.
4. Attend the Narcotic Addiction Foundation and co-operate with the program.
5. Obey the reasonable and proper orders of probation officer.
6. The probationer will surrender himself into the custody of any peace officer who has *reasonable* and *probable* grounds to believe that he is on drugs and submit a sample of his urine on demand.
7. You do not use any drugs other than those prescribed by a doctor.

DATED this day of A.D., 19 , at the City of Vancouver.

I hereby acknowledge that the above-mentioned order has been read over to me and I understand the terms and conditions and I have received a copy of the above-mentioned order. I have been informed of the provisions of subsection 4 of section 664 and the provisions of section 666 of the Criminal Code.

.....
 Accused

.....
 A Justice of the Peace in and for the Province of British Columbia

His Honour Judge

Source: British Columbia Corrections Service.

ANNEX 2

VANCOUVER CITY POLICE INSTRUCTIONS REGARDING URINALYSIS TESTING OF PROBATIONED HEROIN USERS

CONDITIONS OF PROBATION INVOLVING URINALYSIS

Recently the courts have imposed conditions of probation in probation orders that pertain to drug users where urine samples are required as proof of abstinence from the use of heroin.

The order directs that, "The probationer will surrender himself into the custody of any peace officer who has *reasonable* and *probable* grounds to believe that he is on drugs and submit a sample of his urine on demand."

Discretion must be used when enforcing such an order; reasonable and probable grounds would probably involve—immediate needle marks, being on the nod, or habitually in the company of addicts.

Should a probationer qualify for the test, the following procedure will apply:

1. Escort to the Detention Annex area.
2. Obtain sterile container from Matron's office (4th floor).
3. Secure exhibit and release probationer.
4. Deposit exhibit and copy of report in Analyst's Locker in Report Centre.
5. Direct a report to Analyst advising that exhibit was deposited.

The reporting member will be notified by the City Analyst of the result. In all cases of positive results, the member must notify the Provincial Probation Office, 193 E. Hastings Street, 683-6955, between 09:00 and 17:00 hrs. A copy of the Analyst's report plus member's original report to be forwarded to Probation officer.

Failure of a Probationer to Comply: Release him and submit report to probation officer.

Source: British Columbia Corrections Service.

Note: The probation officer deals with any breach of the order.

ANNEX 3

TABLE J.1

SPECIAL CONDITIONS OF PROBATION FOR PERSONS CONVICTED OF SIMPLE POSSESSION OF HEROIN AND PLACED ON PROBATION IN VANCOUVER AND TORONTO DURING 1971 AND 1972

Special Conditions	Vancouver Total—76		Toronto Total—38	
	No.	%	No.	%
Attend the Narcotic Addiction Foundation (Vancouver) or the Addiction Research Foundation (Toronto) and cooperate with the program.....	14	18.4	7	18.4
Submit to urinalysis testing as directed by Probation Officer; a positive test constitutes a violation of Probation Order.....	42	55.7	0	0
Do not associate with drug users or sellers.....	34	44.8	12	31.6
Restricted from being in a specific geographical area of the city.....	6	7.9	0	0
Attend the Narcotic Addiction Foundation (Vancouver) or the Addition Research Foundation (Toronto) as directed by your Probation Officer....	18	23.7	3	7.9
Do not use illegal (narcotic, restricted or controlled) drugs without a prescription.....	14	18.4	14	36.8
Take psychiatric therapy as directed by your Probation Officer.....	4	5.3	4	10.5
Reside at X-Kalay or other therapeutic community and obey its rules and regulations.....	1	1.3	0	0
Take treatment from a named physician.....	2	2.6	0	0
Reside at the Elizabeth Fry Society.....	1	1.3	0	0
The probationer will surrender himself into the custody of any peace officer who has <i>reasonable</i> and <i>probable</i> grounds to believe that he is on drugs and submit a sample of his urine on demand.....	1	1.3	0	0
Attend psychiatric hospital for addiction.....	0	0	1	2.6
Keep in contact with Salvation Army.....	0	0	1	2.6
Attend "Narcanon" and any further treatment as directed by Probation Officer.....	0	0	1	2.6
Involve yourself in Narcotic Rehabilitation Program as approved by Probation Officer.....	0	0	7	18.4
Attend clinic for drug addiction.....	0	0	1	2.6
Attend as an outpatient a clinic for treatment of drug addiction.....	0	0	1	2.6
Attend drug addiction centre.....	0	0	1	2.6
Continue medical treatment in relation to his drug problem.....	0	0	1	2.6
Attend as an outpatient at a clinic for the reclamation of drug addicts.....	0	0	1	2.6

NOTES

1. *Criminal Code*, section 662 and following.
2. The administration of probation falls under provincial jurisdiction as an aspect of the "Administration of Justice in the Province" in section 92(14) of the *British North America Act (BNAA)*.
3. Canada, Canadian Committee on Corrections, *Toward unity: Criminal justice and corrections* (Ottawa: Queen's Printer, 1969) (The 'Ouimet Report'), p. 293.
4. The 'Ouimet Report', p. 304.
5. *Ibid.*, p. 305.
6. *Ibid.*, p. 299.
7. *Criminal Code*, section 666.1(1).
8. Miriam H. Bent, Senior Probation Officer (Vancouver, British Columbia), "Community Treatment of Heroin Addicts", private submission to the Commission, 1971.
9. *Ibid.*, pp. 2-3.
10. *Ibid.*, pp. 3-4.
11. Gerald S. Fields, "An Assessment of a Methadone Maintenance Program for Probationed Heroin Users", unpublished Commission research paper, October 1971.
12. *Ibid.*, pp. 47-48.
13. L. M. Hoff, Senior Probation Officer (Vancouver, British Columbia), personal communication to the Commission, June 30, 1972.
14. Hoff, personal communication to the Commission, December 20, 1972.
15. E. Milligan, Director of Treatment and Rehabilitation, Narcotic Addiction Foundation of British Columbia, personal communication to the Commission, June 26, 1972.
16. Hoff, personal communication, December 20, 1972.
17. Memorandum from G. D. Fralick to Superintendent, Adult Probation Branch, Edmonton, Alberta, regarding "Request for Additional Staff", dated September 20, 1972, pp. 2-3.
18. R. H. Bricker, Probation Officer, Drug Unit (Edmonton), Adult Probation Branch, Department of the Attorney General of Alberta, personal communication to the Commission, October 30, 1972.
19. Alberta, Department of the Attorney General, Adult Probation Branch, personal communication to the Commission, February 13, 1973.
20. B. A. Bieber, Assistant Director of Probation Services (Winnipeg), Manitoba Department of Health and Social Development, personal communication to the Commission, October 30, 1972.

21. Ontario, Department of Justice, *Ontario Provincial Probation Services comparative statistical report: Report on the work of Provincial Probation Officers for the years 1970-1971*, p. ii.
22. P.-A. Rivard, Director of Adult Probation Services (Montreal), personal communication to the Commission, November 15, 1972.
23. A. Wagner, Chief Probation Officer, Adult Probation Branch (Halifax), personal communication to the Commission, January 11, 1973.
24. *Ibid.*, personal communication, February 1, 1973.

Parole of Heroin Dependents in Canada

THE MEANING OF "PAROLE"

As defined in the *Parole Act* of Canada, "parole" means the authority granted to an inmate to be at large during his or her term of imprisonment.¹ The Government of Canada has vested the power to grant this authority in a National Parole Board² as well as a provincial parole board in Ontario and British Columbia.³

Parole is understood to have two fundamental purposes, described by the National Parole Board as follows:

The dual purpose of parole is the reformation and rehabilitation of the inmate, and the protection of society.

Offenders who have made good use of their time in custody and who have shown a desire to lead a law abiding life in the future are given the opportunity of living in their community, under supervision.

This supervision and counselling assists them in becoming useful, law-abiding citizens while at the same time ensuring they do not misbehave or return to crime.⁴

JURISDICTION WITH RESPECT TO PAROLE

The National Parole Board, a nine-member administrative body, makes decisions regarding the parole of all adult offenders who have been sentenced to a definite term of imprisonment for offences under federal law, whether the offender is imprisoned in a federal penitentiary or a provincial penal institution. The provincial parole boards in Ontario and British Columbia make decisions concerning the parole of offenders who have been sentenced to an indeterminate period of imprisonment as provided for in the *Prisons and Reformatories Act*.⁵

National Parole Board decisions are ordinarily taken by two-member panels sitting at the correctional institutions throughout the country. The

decisions of the Board, and of persons designated by it to act on its behalf in certain matters, are not subject to appeal, either to administrative authority or to the courts. The Board is presumably subject, however, like other federal administrative bodies, to judicial review to assure that it does not exceed its jurisdiction or act irregularly.

The balance of this appendix deals only with persons subject to the authority of the National Parole Board.

ELIGIBILITY FOR PAROLE

Under the federal *Parole Regulations*, the following are the minimum terms which inmates must serve before they can be eligible for parole by the National Parole Board: on a sentence of less than two years (which must be served in a provincial institution)—one-third of the sentence; on a sentence of two years or more (all sentences of two years or more must be served in a federal penitentiary) but less than three years—nine months; on a sentence of three years or more—one-third of the sentence or four years, whichever comes first (although it has recently been proposed that the *Parole Regulations* be amended so that the term to be served in this case would be one-third of the sentence or seven years, whichever is the lesser); on a life sentence—seven years, except on a life sentence for non-capital murder or a commuted death sentence, in which case the minimum to be served before being considered for parole is ten years less time spent in custody before the term of imprisonment. In the latter cases parole must be approved by the Governor in Council—in other words, the federal cabinet. The National Parole Board may, under exceptional circumstances, grant parole before the expiry of these minimum terms. The case of an inmate who is serving a sentence of two years or more is automatically reviewed within six months of his admission to an institution, and a date for his parole eligibility is set. Unless the National Parole Board is informed in writing that an inmate does not wish to be paroled, his case is automatically reviewed every two years until parole is granted or his sentence is terminated.

THE EFFECT OF PAROLE

Release from custody on parole does not shorten an inmate's sentence; it is meant to shorten the period of imprisonment which he would otherwise have to serve. The National Parole Board does have the power to discharge an offender before the expiration of his sentence, but this power is seldom exercised, and then usually only in the case of very long sentences. As a general rule, parole lasts, in the form of supervision in the community, for the full unexpired portion of the sentence (unless, of course, there is prior parole suspension, forfeiture or revocation—described in detail in the following section), including the period of remission, statutory or earned, with which the inmate was credited while in prison.⁶ Formerly an inmate

who was not paroled would have his sentence reduced by the period of statutory and earned remission, and this sometimes led inmates to decline the opportunity for parole. However, there is now a period of *mandatory supervision* in the community following release for prisoners who have not been paroled but have at least sixty days of statutory and earned remission to their credit at the time of release. The period of mandatory supervision is for the length of such remission.⁷

PAROLE SUSPENSION, REVOCATION AND FORFEITURE

Any member of the National Parole Board or any person designated by it may suspend any parole and authorize the apprehension of a paroled inmate,

... whenever he is satisfied that the arrest of the inmate is necessary or desirable in order to prevent a breach of any term or condition of the parole or for the rehabilitation of the inmate or the protection of society.⁸

In practice, the District Representatives and their Assistants in the National Parole Service have been designated to suspend parole and authorize the apprehension of a paroled inmate. The paroled inmate must be brought, as soon as is conveniently possible, before a magistrate who must remand him in custody until the suspension of his parole is cancelled or his parole is revoked or forfeited. Within 14 days of such remand the person who ordered the suspension, or some other person designated by the Board for that purpose, must review the order and either cancel the suspension or refer the case to the Board. Upon such referral, the Board reviews the case, and after such investigation as it considers necessary, either cancels the suspension or revokes the parole. An inmate who is in custody as a result of parole suspension is deemed to be serving his or her sentence.

The National Parole Board has absolute discretion to assign "any terms or conditions it considers desirable" to a grant of parole and to revoke a person's parole and require his reincarceration on its determination that it is "necessary or desirable in order to prevent a breach of any term or condition of the parole, or for the rehabilitation of the inmate or the protection of society."⁹

Parole is automatically forfeited when a paroled inmate is convicted of an indictable offence which was committed after the grant of parole and which is punishable by imprisonment for two years or more. If the paroled inmate is sentenced for this new offence, he will be sentenced to a term to be served in addition to the unexpired portion of his original sentence; the courts have no discretion to require that these terms be served concurrently.¹⁰ By virtue of a policy adopted by the National Parole Board in the fall of 1970, a paroled inmate whose parole is forfeited is now eligible for "re-parole".¹¹

The effect of recommitment resulting from revocation or forfeiture of parole is that the period spent on parole does not count towards the paroled inmate's sentence; he must serve in custody the entire portion of his sentence that was unexpired at the time he was granted parole (assuming that re-parole is not granted in the case of parole forfeiture), including any period of statutory or earned remission which stood to his credit.¹² The parolee whose parole is revoked or forfeited may spend a longer period in prison than he would have spent had he not been paroled.¹³ For example: an offender who is given a three-year sentence, is paroled after serving one year in custody, and is recommitted for revocation or forfeiture one year after his release on parole, will be returned to prison to serve the full two years of his original sentence that remained unexpired at the time his parole was granted. His statutory and earned remission for this two-year "remanent" sentence will be calculated from the time of his recommitment. Assuming that he was entitled to the maximum statutory and earned remission during this remanent sentence (approximately one-third of the sentence, or eight months in this example), he would be released after serving an additional one year and four months in confinement. Thus, as a result of his loss of parole he would have served a total of two years and four months in confinement, comprised of the one year prior to the grant of parole and the one year and four months following revocation or forfeiture of parole. Had the same offender not been paroled and had he been entitled to the maximum statutory and earned remission he would have been released upon maximum expiration of this three-year sentence after serving only two years in confinement. (With the institution of mandatory supervision, however, the offender who was not paroled in this example would today be subject to the authority of the National Parole Board for the one-year period of his earned and statutory remission. During the period of mandatory supervision he would be subject to suspension, revocation and forfeiture as though he had been granted parole by the National Parole Board, regardless of whether or not he had applied for parole prior to his release from custody.¹⁴)

The impact of parole revocation and forfeiture on the overall amount of imprisonment of persons who have lost their parole in these ways is not known. One of the questions in this regard is the extent to which the parole of inmates, in view of the effect of parole revocation and forfeiture, actually reduces the amount of time they will spend in prison below that contemplated in their original sentence. A researcher at the University of Toronto Centre of Criminology determined from his study of 399 penitentiary parole applicants in whose cases the Parole Board took a final decision during the period 1962-1964 that there was a net reduction of 10% (or 36 days a year per inmate) of the time that would have been spent in prison had parole not been granted.¹⁵ We are not aware of a more recent study of this kind in Canada.

The additive effect of parole revocation and forfeiture on the overall amount of imprisonment of parolees has very serious implications for the former heroin dependent who is granted parole considering, as we indicate below, that a limited number of such persons have successfully completed parole in Canada.

Table K.2 on page 1047 presents parole statistics compiled by the National Parole Board from its first year of operation in 1959 to 1972.

THE "SPECIALIZED CASELOAD APPROACH" TO THE PAROLE OF HEROIN DEPENDENTS IN CANADA: 1962-1972

Until 1953 it was the unwritten policy of the Remission Service in the Federal Department of Justice not to grant parole, or ticket of leave as it was then called, to inmates with a history of opiate narcotic dependence. During the period 1953 to 1958 the Remission Service, under the direction of Mr. A. J. MacLeod, granted perhaps five or six tickets of leave to opiate dependents found by the courts to be "habitual criminals" and placed under preventive detention for indeterminate periods.¹⁶

The National Parole Board and the Canadian Penitentiary Service set up a Special Narcotic Addiction Project (commonly referred to as "SNAP") in 1961. Throughout SNAP, which was carried out in British Columbia, the National Parole Service applied the so-called "specialized caseload approach" to the parole of inmates who had a history of opiate dependence prior to their incarceration. This approach involved intensive supervision of smaller than usual caseloads of opiate dependents by Parole Service Officers in the Vancouver and Abbotsford offices of the National Parole Service who were specially trained in techniques of treatment and supervision of narcotic dependents. (The first major parole experiment in North America employing this approach was the Special Narcotic Project conducted by the New York State Division of Parole between November 1, 1956 and October 31, 1959.¹⁷) The "specialized caseload approach" to the parole of opiate dependents was discontinued by the National Parole Service in January 1972.¹⁸ The following description of the Canadian experiment with this approach is based on SNAP reports by the National Parole Service and discussions with the Parole Service Officers involved in these projects.

The first phase of the Special Narcotic Addiction Project (SNAP I) began with the parole, between June 8 and December 5, 1962, of 16 inmates from the British Columbia Penitentiary who had a history of opiate dependence prior to their incarceration. A "treatment team", consisting of a National Parole Service Officer, a part-time penitentiary consultant psychiatrist and a full-time penitentiary social worker, was appointed to work with these parolees during the period of their parole. The 16 parolees were

described by the Parole Officer on the treatment team in an interim report on this project as follows:

Fourteen of them were aged between 30 and 40, all with very extensive criminal backgrounds, whilst the other two were aged 23 and 25 respectively. All members of the group were drug addicts of many years standing, none had any skills to offer, a few had never worked at all in their lives, and the majority of them had been returned again and again to the Penitentiary after very short periods on the street, during which time they quickly became addicted again.¹⁹

(Specialists in the parole field, given these characteristics, would describe SNAP I parolees as "bad risks".) The program of treatment and supervision was described in the following passage in the final report on the project:

Upon release [the parolees] attended weekly group therapy and individual case work sessions within the parole framework. They were periodically subjected to surprise Lorfan (narcotic detection) testing. There were special police agreements to report any suspicious associations or circumstances at once. Parolees were required to abstain from narcotics but remained in Vancouver which contains Canada's largest addict community.²⁰

The status of SNAP I parolees at the end of January 1964 (that is, between one and one and one-half years after their release on parole) was reported to be as follows:

(a) Parole completed	2
(b) Active parolees	4
(c) Returned to prison for technical violations related to drugs	5
(d) Returned to prison for technical violations related to alcohol	1
(e) Returned to prison for drug offences	1
(f) Returned to prison for theft	3

Of the ten SNAP I parolees who had been returned to prison by January 1966, two had had their paroles suspended, five had had their paroles revoked, and three had lost their paroles through forfeiture.²¹ (See Annex 2 on page 1048.)

The major problems among SNAP I parolees were described as follows: gaining employment and restoring confidence that the men could find a place in normal society. The major long-range problem was that of establishing meaningful relationships in the normal society and thus providing a narcotic substitute.²² Drug use by the parolees was described as follows:

Thirteen of the sixteen men posed major drinking problems while at least eight also used barbiturates. Seven men had major narcotic relapses (requiring Methadone withdrawal) while two of these had partial relapses and five more are known to have had isolated injections. Two men abstained.²³

The second phase of the Special Narcotic Addiction Project (SNAP II) involved the parole, between June 1964 and January 1966, of 29 inmates with a history of opiate dependence. The "treatment team" during this project consisted of a National Parole Service Officer and a psychiatrist in the Canadian Penitentiary Service. The objectives of SNAP II were reported in an interim report on the project to be the same as those in SNAP I.

As it was not possible to set up a control group, this project was to be considered essentially experimental again as opposed to research.

The aims continue to be staff training and experience and to learn as much as possible about the major problems presented in the treatment and rehabilitation of criminal addicts so as to be able to make further recommendations as to staff, technique, facilities and other supportive measures necessary to work with success in the future anticipated large scale treatment program of narcotic addicts in the parole setting.²⁴

(The large-scale parole program referred to in this report was that which was to take place following the release on parole of former opiate-dependent inmates who would be confined at Matsqui Institution in Abbotsford, British Columbia. See Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada*.)

Each of the 29 parolees in SNAP II was required to sign the standard Parole Agreement which contained essentially the following conditions:

1. To remain until expiration of his sentence under the authority of a Regional Representative of the National Parole Board.
2. To report immediately upon release, and at least once a month thereafter, to a designated Parole Service Officer.
3. To accept the supervision and assistance of his Parole Service Officer.
4. To remain in an area specified by the Parole Board or the Regional Representative of the Board and to obtain permission to leave that area when there was cause to do so.
5. To endeavour to maintain steady employment and to report to the Regional Representative through his parole officer, any change or termination of employment or any other change of circumstance such as accident or illness.
6. To secure advance approval from the Regional Representative, through his parole officer, if at any time he desired to: (a) purchase a motor vehicle; (b) incur debts by borrowing money or instalment buying; (c) assume additional responsibilities, such as marrying; and (d) own or carry fire-arms or other weapons.
7. To abide by all instructions which may have been given by his parole officer or by the Regional Representative through his parole officer, and especially with regard to employment, companions, hours, intoxicants, family responsibilities, and court obligations.

8. To communicate at once with the Regional Representative, through his parole officer, if he were arrested or questioned by peace officers regarding any offence.
9. To obey the law and fulfill all his legal and social responsibilities.

In addition to these standard conditions, the parolees were required to agree to the following special conditions: that they would abstain from the use of "narcotics"; that they would remain within a twenty-mile radius of Greater Vancouver (and that they would stay away from an "out-of-bounds" area in downtown Vancouver); that they would attend weekly interviews with the Project Psychiatrist; that they would keep individual appointments with the Parole Officer; and that they would have no further association with any person known to be an addict or ex-addict, including one another, unless by special permission of the Parole Officer. (Sessions at the Narcotic Addiction Foundation of British Columbia and with the penitentiary psychiatrist were considered exceptions to this last condition.)²⁵

The interim report on SNAP II noted that the mental fitness of the SNAP II parolee had been impaired by the dependent state of mind created by prison discipline and routine.

The maximum security situation where most movements are made by the bell and most decisions are made by the staff . . . tends to render him incapable of making decisions and ill-prepared to establish self-controls.

The drastic sudden move to the open community leaves him bewildered, lost, fearful and often initially incapable of thinking out even the simplest steps necessary to prepare himself for a work day or to adapt himself to a family routine. The result is that he is highly inclined to seek out the comforting acceptance of people he has known, principally in the criminal addict community, and the old synthetic relief from all stresses, principally alcohol, barbiturates and narcotics.²⁶

The most serious problem noted in the interim report of SNAP II was the inability of most of the parolees to break away from associations with the opiate-using community and to establish new relationships in conventional society. This point was made by the National Parole Service Officer who supervised the SNAP II parolees in the following passage of the report (letters have been substituted for the names of the parolees):

This [inability to socialize] still poses the single main overall problem. Of the twenty-four men, originally released, apparently only A had made long-range plans prior to his release and was able to carry these out. On initial release, many of the rest of the men lived day by day. After approximately six months release, B and C had each settled down with healthy wives but only C was withdrawing from addict thinking and values and the general addict community, and was beginning to make social adjustment in the normal community, and was also formulating some long-range plans. B had returned to a healthy family as far as drugs of delinquency were concerned but he

essentially identified still with the addict community and was living day by day. D, E and F established relationships on the fringe of the underworld, while G, H, B, I, and J have made periodic half-hearted attempts and partial inroads into the normal community but have been essentially unable to find lasting and meaningful relationships there. K, L, M, and N have made practically no progress in normal socialization.²⁷

Lorfan testing for the presence of drugs was not used as frequently during SNAP II as it was during SNAP I. The Project Parole Officer relied on a system of trust and admissions by parolees to determine whether they had relapsed to illicit drug use. (Tests were immediately ordered, however, following a report from a police officer that a parolee was suspected of using drugs.) Drug use by SNAP II parolees, to the extent that it could be ascertained in this way, was described as follows:

... of all the parolees, a few have abstained, some are unknown, and at least eight are known to have had periodic isolated fixes, some of these having full relapses, and some only partial relapses. However, most of them have come to the Treatment Team for help and have been withdrawn successfully without being returned to prison. Two, however, have been returned to prison after getting into the hands of the police through using narcotics.²⁸

When the interim report on SNAP II was written in January 1966, 18 of the 29 parolees released between June 22, 1964 and January 12, 1966 were still on parole. (See Annex 2 on page 1048.) Of these 18 parolees, four had undergone a previous period of confinement as a result of the suspension of their paroles, one had previously received a formal warning from the Parole Board, and one was awaiting the outcome of a pending *Criminal Code* charge. Six of the 29 parolees were in custody as a result of the revocation of their paroles. Three were in custody as a result of their paroles being suspended. One parolee had previously been charged with the commission of an indictable offence and was in custody following forfeiture of his parole. Only one of the 29 parolees had "successfully" completed his parole period.²⁹

Speaking generally of the conditions required for the successful parole of opiate dependents, the report stated:

... although the addict is a very psychologically and socially sick person with his primary problems dating from early conflicts with authoritatively and punitively oriented people; given:

- (a) Reasonable motivation,
- (b) A long parole period,
- (c) Some healthy family support,
- (d) Some personal stability,
- (e) Sufficient ability to establish normal relationships;

he can be successfully rehabilitated.

... the essential role of the Parole Officer is to give support and guidance and to provide a firm but sympathetic authority figure with which the parolees can personally identify ... the essential role of the Psychiatrist is to provide a secondary outlet by which the parolees can ventilate any hostility towards the Parole Officer and in the process, aid self-examination and examination of their status in life. ... the essence of treatment is to help guide the parolee towards correct decisions rather than to attempt to apply force.³⁰

The National Parole Service Regional Representative in Vancouver reported on the status of SNAP II parolees in August 1967.³¹ A comparison of the status of each of these parolees as recorded by the SNAP II Parole Officer in January 1966 and by the Regional Representative in August 1967 is presented in Table K.1.

TABLE K. 1

A COMPARISON OF THE STATUS OF SNAP II PAROLEES AS RECORDED IN
JANUARY 1966 AND AUGUST 1967

As of January 1966	As of August 1967
1. In custody (parole revoked)	1. In custody (parole revoked)
2. Parole completed	2. Parole completed
3. In custody (parole suspended)	3. In custody (parole forfeited)
4. Still on parole	4. Parole completed
5. Still on parole	5. In custody (parole forfeited)
6. Still on parole	6. In custody (parole forfeited)
7. Still on parole	7. In custody (parole forfeited)
8. Still on parole	8. In custody (parole forfeited)
9. Still on parole	9. Still on parole
10. Still on parole	10. Parole completed
11. Still on parole	11. In custody (parole forfeited)
12. Still on parole	12. In custody (parole suspended)
13. In custody (parole forfeited)	13. In custody (parole forfeited)
14. Still on parole	14. Still on parole
15. Still on parole	15. Parole completed
16. In custody (parole revoked)	16. In custody (parole revoked)
17. In custody (parole revoked)	17. In custody (parole revoked)
18. Still on parole	18. Parole completed
19. Still on parole	19. Still on parole
20. Still on parole	20. Still on parole
21. Still on parole	21. Still on parole
22. Still on parole	22. Parole completed
23. In custody (parole suspended)	23. In custody (parole revoked)
24. In custody (parole suspended)	24. In custody (parole forfeited)
25. Still on parole	25. Parole completed
26. Still on parole	26. Parole completed
27. In custody (parole revoked)	27. In custody (parole revoked)
28. In custody (parole revoked)	28. In custody (parole revoked)
29. In custody (parole revoked)	29. In custody (parole revoked)

Thus, as of August 1967, five (17%) of the 29 SNAP II parolees were still on parole. Sixteen (55%) had been returned to custody (one following suspension of his parole, seven following revocation of their paroles, and eight following forfeiture of their paroles), and eight (28%) had completed their parole periods.

The third phase of the Special Narcotic Addiction Project (SNAP III) involved the release on parole of ten inmates between November 18, 1966 and December 16, 1966. Each of these inmates had had previous histories of opiate dependence, and each of them had participated in the first Treatment-Research Program (TRP I) at Matsqui Institution during the seven months prior to their release on parole.³² (See Annex 2.) Eight of these inmates were subject to supervision by the Vancouver Office of the National Parole Service during their parole periods; and two of them were subject to supervision by the Abbotsford Office.

A report by the Project Parole Officer in the Vancouver Office on the status of the eight parolees under his supervision emphasized again the difficulty experienced by the parolees in breaking away from associations with the opiate-using community and establishing new relationships in conventional society. This point was made in the following passage of the report:

Many things plague the addict, who is attempting to change his ways. In his earlier years, he did not acquire the education or develop the social skills required for a different way of life. Consequently, he is often faced with loneliness, depression and boredom. He really makes limited use of the entertainment media available. For instance, there seems to be a general interest in sports [among addict parolees], but it takes time to develop a taste for other interests and the desirable social contacts that go along with them. In the group, there was almost general concern about how one goes about mixing with non-addicts, and non-criminals.³³

When this report was written on May 2, 1967, five of the eight parolees were still on parole. One of these five had experienced a previous period of confinement as a result of the suspension of his parole. The remaining three parolees were in custody as a result of their paroles being suspended. Two of the latter were awaiting the outcome of a pending *Criminal Code* charge which could have resulted in the forfeiture of their paroles.³⁴

A report on the status of SNAP III parolees in August 1967 by the National Parole Service Regional Representative in Vancouver revealed a change in the status of only one of the eight parolees discussed above. This individual, who was in custody on May 2, 1967 awaiting the outcome of a pending *Criminal Code* charge, was subsequently convicted on this charge, and his parole was thereby automatically forfeited.³⁵

In his brief to the Commission the Solicitor General of Canada describes the status as of October 1969 of parolees released during SNAP I, II and III

(see Annex 3 on page 1050). This description appears to have been based in part on a summary prepared by the National Parole Board in October 1969, which also refers to a phase IV, V and VI of the Project (see Annex 4 on page 1052). The National Parole Board permitted a member of the Commission's staff to examine its SNAP files at its headquarters in Ottawa in January 1973. The most recent report on file at that time dealing with the status of SNAP parolees was that prepared by the Vancouver Regional Representative in August 1967 (which describes the status of parolees released during SNAP II and III). The Parole Service Officers who specialized in the supervision of opiate-dependent parolees in Vancouver informed the Commission that they did not prepare a report on a specific group of SNAP parolees after SNAP III.³⁶ Under these circumstances, there is some doubt concerning the reliability of the Board's summary of the Special Narcotic Addiction Project as of October 1969.

On May 7, 1971 a "Report of Special Narcotic Addiction Project (1970)" was prepared by a Parole Service Officer in Vancouver. This report deals generally with *all* opiate-dependent parolees under supervision of the National Parole Service in Vancouver during 1970; it does not describe any of them as having been released during a specific phase of SNAP, as did the reports discussed above.

With regard to future plans for SNAP, this report stated:

In the immediate future we look forward to... [t]he development of a research instrument to assist in the collection of data regarding the special narcotic addiction project. Because of the increase in the problem of drug addiction and the necessity for the Vancouver Office to supervise more and more drug addicts on parole, it is most important that we have a complete knowledge of what we have done, what we are doing, and where we plan to go from here.³⁷

At the time of writing the present report, such a research instrument had not been developed, and the National Parole Service had not made a further attempt to evaluate the Special Narcotic Addiction Project or the performance of heroin dependents on parole since the discontinuation of the specialized caseload approach in January 1972.³⁸

In the absence of a report on the status of SNAP parolees more recent than that prepared in August 1967, we are unable to describe the status of *any* of the SNAP parolees since that time. We do not know how many of them are still on parole; how many of them completed their parole periods and are at liberty in the community; how many of them completed their parole periods and were later sentenced for a subsequent offence; or how many of them are in custody as a result of the suspension, revocation or forfeiture of their paroles or "re-paroles".

The *impression* of the National Parole Board and of the Parole Service Officers who specialized in the supervision of opiate-dependent parolees

is that the Special Narcotic Addiction Project met with very limited success.³⁹ In addition to an apparent shortage of Parole Service Officers to engage in intensive supervision of opiate-dependent parolees, this overall impression of the success of SNAP very likely influenced the decision of the National Parole Service to abandon the specialized caseload approach in January 1972. At that time, the opiate-dependent parolees who comprised a special caseload were assigned to ordinary caseloads under supervision of the National Parole Service. Unfortunately, the Project was not designed to compare the effectiveness of the specialized caseload approach with the less intensive supervision to which opiate-dependent parolees are now subject on the Parole Service's ordinary caseloads. Studies conducted in the United States, however, suggest that there is no statistically significant difference between the recidivism rates of parolees who undergo intensive supervision on special caseloads and parolees subject to less intensive supervision on ordinary caseloads, although these studies do suggest that the amount of time spent with a parolee does have a bearing on parole outcome.⁴⁰

Based on the SNAP reports of the National Parole Service discussed above, it would appear that few inmates with a history of opiate dependence complete their parole period without experiencing the prior loss of their paroles through suspension, revocation or forfeiture. In view of the additive effect of parole revocation and, in most cases parole forfeiture on the overall amount of imprisonment of inmates who lose their parole in these ways, it would seem possible that, on balance, the former opiate-dependent inmate may spend more time in custody as a result of parole than he would if he were not released on parole. The SNAP projects did not compare the experience of former opiate-dependent inmates released on parole with that of former opiate-dependent inmates not released on parole (that is, those released upon expiration of their sentence before the introduction of mandatory supervision in 1971). We are not aware of any studies of this kind in North America.

THE RECENT EXTENT OF HEROIN DEPENDENCE AMONG PAROLEES ON SELECTED CASELOADS IN CANADA

An accurate estimate of the extent of heroin dependence among parolees in Canada cannot be made on the basis of existing criminal statistics alone. As a general rule criminal statistics do not identify heroin dependents, as such. In this section we discuss the extent of heroin dependence among parolees in Canadian cities with a high concentration of heroin use based on information provided by National Parole Service Officers in 1972 concerning the number of parolees on their caseloads who were known to be regular users of heroin.

The National Parole Service Office in Vancouver, British Columbia, recorded the number of heroin-dependent parolees under its jurisdiction from April 1971 to March 1972 as follows: April 1971—79; May 1971—80; June

1971—78; July 1971—76; August 1971—73; September 1971—72; October 1971—78; November 1971—79; December 1971—74; January 1972—72; February 1972—67; March 1972—66.⁴¹ As of August 1, 1972 the number of heroin dependents on parole in Vancouver had dropped to 47.⁴²

Of the 47 heroin dependents on parole in Vancouver on August 1, 1972 (at which time there were approximately 370 persons on parole in that city), ten were participating in the methadone maintenance program at the Narcotic Addiction Foundation of British Columbia. (Parolees in Vancouver who are discovered to be using heroin may be presented with the alternative of entering a methadone maintenance program or being returned to custody.) Ten others were attending the Foundation each day for urinalysis; and 17 were attending the Foundation on a random basis for urinalysis. The remaining ten parolees were not attending the Foundation for methadone maintenance therapy or for urinalysis; nor were they in any other treatment program at that time.⁴³

Following informal discussions with Parole Service Officers in Abbotsford, Prince George and Victoria, British Columbia, the National Parole Service Assistant District Representative in Vancouver recorded the number of regular heroin users on parole in these cities as of August 1, 1972 as follows: Abbotsford—35 (including day parolees⁴⁴); Prince George—3; and Victoria—10.⁴⁵

Parole Service Officers interviewed in Vancouver by a member of the Commission's staff observed that virtually all inmates with a history of heroin dependence had used the drug while on parole.⁴⁶ They were also in agreement that a significant number of heroin-dependent parolees had been introduced to the use of the drug during their confinement.⁴⁷

The National Parole Service District Representative in Edmonton, Alberta, informed the Commission on October 11, 1972 (when there were approximately 280 persons on parole in Edmonton) that he could not recall a parolee in that city who had used heroin in the previous five months. A parolee who is discovered to be using heroin in Edmonton will be presented the alternative of abstaining altogether from heroin use, of entering a methadone maintenance program or of being returned to custody.⁴⁸

Following an informal survey of Parole Service Officers in Winnipeg, Manitoba, the National Parole Service District Representative informed the Commission that there were seven regular heroin users on parole in that city as of October 12, 1972. At that time, there were approximately 280 persons on parole in Winnipeg. Two of the parolees who were known to have used heroin were methadone maintenance patients at the Drug Rehabilitation Program at St. Boniface Hospital in Winnipeg. The National Parole Service will direct parolees using heroin to the Counselling Service

of the Provincial Alcoholism Commission, who in turn will refer them to the Drug Rehabilitation Program.⁴⁹

The National Parole Service District Representative in Toronto, Ontario, after discussions with Parole Service Officers in that city, informed the Commission that there were no known heroin users under their jurisdiction on October 25, 1972. There were about 650 persons on parole in Toronto at that time. The Parole Officers recalled that 28 persons then on parole had had histories of heroin dependence but were not presently using heroin to their knowledge.⁵⁰ Four persons on parole in Toronto in October 1972 were participating in the methadone maintenance program at the Addiction Research Foundation of Ontario. Their treatment at the Foundation had been arranged by officials at Matsqui Institution in British Columbia.⁵¹

The National Parole Service District Representative in Montreal, Quebec, informed the Commission that there were no known heroin users on parole in that city on October 19, 1972. Approximately 920 persons were on parole in Montreal at that time. Earlier in 1972, the Parole Service in Montreal had referred three persons experiencing drug problems to the Spera Foundation, a residential therapeutic community in Rawdon, Quebec.⁵² (See Table H.2 on page 1002.)

CURRENT POLICY OF THE NATIONAL PAROLE BOARD WITH RESPECT TO HEROIN DEPENDENTS

There does not appear to be any clearly defined special policy with respect to the parole of offenders with a background of drug dependence, although there is the following statement in a handbook on parole issued by the National Parole Board:

Many inmates applying for parole were under the influence of alcohol when they committed their crimes. Some are chronic alcoholics. When alcohol is directly involved in the case, the Board believes it is in the best interest of both society and the inmate that complete abstinence from intoxicants be one of the conditions of parole.

We expect the inmate to recognize his problems and to do something to overcome them. Indeed, we are encouraged by the number of inmates who take advantage of Alcoholics Anonymous programs available within the various institutions and who continue their affiliation with AA upon their release.

Greater care must be taken in the granting of parole to drug addicts because of the serious nature of drug addiction. Their applications demand greater study than usual. However, if it appears the inmate in question sincerely intends to stay away from drugs, the Parole Board does everything in its power to help him do so. Caution being the keynote in these cases, all such parolees are carefully supervised and assisted upon release from an institution. Although there is no known sure cure for drug addiction, many parolees have abstained from the use of drugs; some for periods of several years.⁵³

The present policy of the Board is based on the belief that the former heroin dependent, who must eventually be released from custody in any event, can be better treated in the community than in prison and should have an opportunity, like other offenders, to attempt to make an adjustment in the community before the termination of his sentence.⁵⁴ When deciding on an application for parole by an inmate who has a record of heroin dependence, the Parole Board will look for some indication that the person intends to change his former drug-using behaviour. This positive indication would be found in the usual course of examining his past performance in the community and in the correctional institution and in his statements of future intentions.⁵⁵

The Parole Board does not require every inmate with a history of opiate dependence to participate in a methadone maintenance program as a condition of parole; however, it does feel that it is necessary in certain cases to present a parolee who is discovered to be using heroin with the alternative of entering a methadone maintenance program or being returned to prison.⁵⁶

In the absence of a systematic evaluation by the National Parole Service of the experience with parole of opiate dependents, there is not a basis for firm conclusions or specific recommendations concerning such parole. Under the circumstances, we recommend that the Parole Service undertake such evaluation, having regard to such matters as: (a) the effectiveness of varying degrees and kinds of supervision; (b) the use of methadone and other forms of opiate maintenance; and (c) the effect of parole suspension and revocation on the rehabilitation of the parolee.

ANNEX 1

TABLE K.2
STATISTICAL TRENDS IN APPLICATIONS, GRANTING AND TERMINATION (FOR VIOLATION) OF NATIONAL PAROLE IN CANADA SINCE ITS INCEPTION, 1959-1972*
(Ordinary Parole)†

	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
FEDERAL														
Percentage Eligible Applying	—	85%	64%	64%	57%	56%	61%	62%	66%	71%	75%	83%	89%	88%
Number Granted During														
Year.....	944	1192	1005	885	663	751	1127	1114	1328	1331	2030	2852	2785	1756
Granted as Percentage of														
Applicants.....	44%	34%	35%	32%	26%	29%	37%	41%	47%	42%	62%	64%	61%	44%
PROVINCIAL														
Number Granted During														
Year.....	1044	1333	1292	987	1126	1101	1170	1382	1760	2187	3062	3071	3493	1957
Granted as Percentage of														
Applicants.....	41%	51%	32%	30%	31%	29%	31%	39%	46%	54%	70%	74%	71%	54%
TOTAL														
Granted During Year.....	2038	2525	2297	1872	1789	1852	2297	2496	3088	3518	5092	5923	6278	3713
Granted as Percentage of														
Applicants.....	42%	41%	33%	31%	29%	29%	34%	40%	46%	49%	66%	69%	66%	49%
TERMINATIONS														
Revocation during year.....	60	97	115	97	122	111	107	127	141	176	212	365	367	442
Forfeiture during year.....	58	94	141	114	114	95	85	116	151	206	339	639	1142	1041
Total Revocations and Forfeitures during year†.....	118	191	256	211	236	206	192	243	292	382	551	1004	1509	1483

Source: National Parole Board, March 30, 1973.

* The figures in this table represent "decisions" taken by the National Parole Board in a given year. Persons who are granted parole in one year may not actually be released from custody in that year; and persons whose paroles are revoked or forfeited in one year may not be returned to custody in the year in which the revocation or forfeiture was recorded.

† "The decision whereby an inmate of an adult federal or provincial correctional institution, after having served a portion of his sentence, is released conditionally under supervision to carry out the remainder of his sentence in the community," (Canada, Department of the Solicitor General, *National Parole Board: Statistics 1970* [Ottawa, n.d.], in "Glossary of Terminology Used in the Report".)

‡ It is not possible to relate the total number of parole revocations and forfeitures in a given year as a proportion of the total number of paroles granted in the same year, since persons whose paroles are revoked or forfeited in one year may have been released on parole in a previous year.

ANNEX 2

TABLE K.3

THE SPECIAL NARCOTIC ADDICTION PROJECT

NATIONAL PAROLE SERVICE PROJECT DESIG- NATION	TREATMENT- RESEARCH PROGRAM (TRP) AT MATSQUI INSTITUTION (M) Male inmates (F) Female inmates	NUMBER OF INMATES PAROLED IN EACH PROGRAM ⁵	PERIOD DURING WHICH PAROLES GRANTED (OR MONTH IN WHICH LAST PAROLE GRANTED IN EACH PROGRAM) ⁹	STATUS OF SNAP PAROLEES AS REPORTED BY THE NATIONAL PAROLE SERVICE					NATIONAL PAROLE SERVICE REPORT AUTHOR/DATE	CANADIAN PENITENTIARY SERVICE (MATSQUI INSTITUTION) REPORT AUTHOR/ DATE
				IN CUSTODY (PAROLE SUSPENDED)	IN CUSTODY (PAROLE REVOKED)	IN CUSTODY (PAROLE FORFEITED)	PAROLE COMPLETED	STILL ON PAROLE		
SNAP I		16	June 8-Dec. 5, 1962	2	5	3	2	4	Selkirk (1/64)	
SNAP II		29	June 1964-Jan. 1966	3	6	1	1	18	Selkirk (1/66)	
				1	7	8	8	5	Stevenson (7/67)	
SNAP III	TRP I (M)	10	Nov. 18-Dec. 16, 1966	3				5	Bishop (4/67) ¹⁰	Murphy (6/68)
				2		1		5	Stevenson (7/67)	
	TRP II (M) (14 in PTU) (12 in LC ²)	26	July 15-Aug. 15, 1967						NONE	Craigen, McGregor & Murphy, 1967 ¹¹ Murphy, 1972 ¹²
	TRP III (M) (12 in PTU) (6 in LC) (12 in MC ³)	30	Last parole granted in May 1968						NONE	NONE

TRP IV (F) ⁴	5	Last parole granted in June 1968						NONE	NONE
TRP V (M) (14 in PTU)	146	Last parole granted in February 1969						NONE	NONE
TRP VI (F)	5	Last parole granted in April 1969						NONE	NONE
TRP VII (F)	77	Last parole granted in April 1970						NONE	NONE
TRP VIII (M) (13 in PTU)	138	Last parole granted in September 1971						NONE	NONE

1. Pilot Treatment Unit at Matsqui Institution. (See Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada*.)

2. Limited Control group in the main Matsqui Institution.

3. Major Control group in the main Matsqui Institution.

4. All programs involving female inmates took place in the separate Female Unit at Matsqui Institution.

5. Information in this column pertaining to Matsqui Treatment-Research Programs 3-8 was presented to the Commission by B. C. Murphy, Research Officer, Western Region, Canadian Penitentiary Service, on January 16, 1973.

6. This group of inmates included one person who did not have a history of opiate dependence prior to his incarceration at Matsqui. Some inmates in this group were released upon maximum expiration of their sentence and were, therefore, not under parole supervision following their release from the Institution. (Murphy, personal communication, January 16, 1973.)

7. Some of these parolees were in previous Treatment-Research Programs at Matsqui. (Murphy, personal communication, January 16, 1973.)

8. See note 7 above.

9. See note 5 above.

10. The National Parole Service reports on SNAP III describe only eight parolees in the project who were paroled under the supervision of the National Parole Service Vancouver Office.

11. D. Craigen, D. R. McGregor & B. C. Murphy, "The Pilot Treatment Unit: A Preliminary Report of Treatment-Research Program II—An Experimental Treatment Program for the Narcotic Addict," (Mimeographed), Department of the Solicitor General, Canadian Penitentiary Service (1967).

12. This report, an evaluation of the effectiveness of the treatment program at Matsqui Institution in which these 26 inmates participated prior to their release on parole, is discussed in Appendix I *Treatment of Opiate Dependents in Federal Penitentiaries in Canada*.

ANNEX 3

EXCERPT FROM THE BRIEF OF THE SOLICITOR GENERAL OF CANADA TO THE COMMISSION

(December 1969)

SPECIAL NARCOTIC ADDICTION PROJECT

In 1961 the National Parole Board and the Canadian Penitentiary Service set up a Special Narcotic Addiction Project (referred to as SNAP), the first experiment of its kind in Canada. A group of 16 criminal addicts from B.C. Penitentiary were released on parole. Two years after their release, seven of the 16 were still living in the community, nine had their paroles revoked, but only two of these for further offences. A later follow-up revealed that only three had successfully completed their parole period, and one is still under parole supervision.

In a second phase of this experiment, (SNAP II), 30 men were released under intensive supervision between June and December, 1964. As of October, 1969, 13 of these parolees were still living in the community, nine of whom had successfully completed parole. Of the remaining seventeen, nine had forfeited parole (new crime) and eight had their parole either suspended or revoked (breach of parole regulation).

Notwithstanding the initial results obtained from treatment, and in order to seek more effective treatment of narcotic drug addicts, the Government of Canada built the Matsqui Institution in British Columbia for narcotic offenders.

From the very beginning when the Matsqui Institution was opened in 1966, the Canadian Penitentiary Service and the National Parole Board continued to experiment in the treatment of narcotic addicts both within the institution and in the community. The residential part of the Project was named Pilot Treatment Unit and a sequential numbering system is used to identify each program so as to be able to identify each block of patients who undergo treatment as well as to note each program modification resulting from prior experimentation.^[1]

The Pilot Treatment Unit is a therapeutic community in which a small group of narcotic addicts who are selected from the general population at British Columbia Penitentiary live together. The inmates (addicts) undergo a special training program, which includes all facilities and services based

on current assumptions about the nature of delinquent addiction. In addition, the patients participate in daily group therapy sessions which last up to two hours.^[1]

The first experimental group of ten inmates (PTU I) was treated in the therapeutic community for seven months, beginning on April 25, 1966 and was released on parole (SNAP III) one member at a time between November and December, 1966. Only three were still leading a non-criminal life in the free community after two years; the others had either relapsed or had forfeited their parole. [Pp. 2-3]

^[1] CRAIGEN, D., MCGREGOR, D. R., MURPHY, B. C. *The pilot treatment unit, a preliminary report of treatment research—program II, an experimental treatment program for the narcotic addict*. Department of the Solicitor General, Canadian Penitentiary Service, (1967).

ANNEX 4

SPECIAL NARCOTIC ADDICTION PROJECTS

(SNAP)

[Summary presented to the Deputy Solicitor General of Canada by the
National Parole Board on October 27, 1969]

		Released	Suspended and/or Revoked	Forfeited	Success- fully Completed	Still Active
SNAP	I (1962).....	16	7	5	3	1
	II (1964).....	31	8	9	9	4
	III (1966) (PTU1).....	10	3	4	2	1
	IV (1967) (PTU2).....	26	8	2	4	12
	V (1968) (PTU3).....	29	11	2	1	15
	VI (1968) (PTU4)..... (Females)	5	2	0	2	1
		117	39	23	21	34

SNAP I —was first experiment of its kind in Canada.

PTU —Pilot Treatment Unit.

SNAP III—represents first co-operation with New Matsqui Institution.

SNAP IV—this group included an experimental group of 14 and a control group of 12.

Source: National Parole Board (presented to the Commission on August 29, 1972).

NOTES

1. *Parole Act*, R.S.C. 1970, c. P-2.
2. *Ibid.*, s. 3.
3. *Prisons and Reformatories Act*, R.S.C. 1970, c. P-21, s. 41 (in the case of Ontario), and s. 15 (in the case of British Columbia).
4. Canada, Department of the Solicitor General of Canada, *Parole in Canada* (Ottawa: Queen's Printer, 1970), p. 1.
5. Section 41 in the case of Ontario; section 151 in the case of British Columbia. How this federal and provincial jurisdiction is exercised in practice is discussed in D. Bowie, "Some Aspects of Parole in Canada," *Queen's Law Journal*, 1(2) (November 1971): 167-207. Briefly, by arrangement between the National Parole Board and the British Columbia Board of Parole an inmate in that Province who receives a definite-indefinite sentence (see Appendix F.8 *Sentencing*) and is granted parole by the National Parole Board will be under the jurisdiction of the National Board and subject to the provisions of the national *Parole Act* and *Parole Regulations* during the definite portion of the sentence, and under the jurisdiction of the Provincial Board and subject to parole conditions approved by the Solicitor General of Canada during the indefinite portion. In Ontario, however, an inmate who receives a definite-indefinite sentence and is granted parole by the National Parole Board will remain under the jurisdiction of the National Board and subject to the provisions of the national *Parole Act* and *Parole Regulations* during both the definite and the indefinite portions of the sentence.
6. Statutory remission is provided for in the *Penitentiary Act*, R.S.C. 1970, c. P-6, s. 22 as follows:
 - (1) Every person who is sentenced or committed to penitentiary for a fixed term shall, upon being received into a penitentiary, be credited with statutory remission amounting to one-quarter of the period for which he has been sentenced or committed as time off subject to good conduct.

Earned remission is defined in section 24 of the *Penitentiary Act* as follows:

- (1) Every inmate may be credited with three days remission of his sentence in respect of each calendar month during which he has applied himself industriously, as determined in accordance with any rules made by the Commissioner [of Penitentiaries] in that behalf, to the program of the penitentiary in which he is imprisoned.

Persons sentenced or committed to imprisonment in a place of confinement other than a penitentiary (that is, a provincial penal institution) are entitled to the same amount of statutory and earned remission as inmates in federal penitentiaries. (*Prisons and Reformatories Act* R.S.C. 1970, c. P-21, sections 17(1) and 18(1).)

7. *Parole Act*, s. 15.
8. *Ibid.*, s. 16(1).
9. *Ibid.*

10. *R. v. Markwart* [1969] 1 C.C.C. 167 (Sask. C.A.).
11. *Re-Parole Granted* is "The decision of the Board whereby a parolee who has automatically forfeited his parole due to the commission of an indictable offence while on parole is subject to further parole by issuance of a new Certificate of Parole. . . . The parolee is subject to a further parole because his chances of rehabilitation are still considered acceptable." (Canada, Department of the Solicitor General, *National Parole Board: Statistics 1970* [Ottawa, n.d.], in "Glossary of Terminology Used in the Report".) Preliminary parole statistics compiled by the Statistical Information Centre, Department of the Solicitor General of Canada for 1971 indicate that a total of 209 re-paroles were granted by the National Parole Board in that year. It has recently been proposed that the *Parole Regulations* be amended so that a person who forfeits his parole would have to serve one-half of his new term of imprisonment or seven years, whichever is the lesser, before being again considered for parole.
12. *Parole Act*, ss. 20 and 21. The Canadian Committee on Corrections, recognizing that the person who lost his parole through revocation or forfeiture was not credited with the period of time successfully served in the community on parole, recommended that:

. . . when parole is forfeited or revoked the parolee be credited with the period of time which he has already successfully served in the community but that he be not credited with the period of time which is equivalent to the 25 per cent statutory remission or with any earned remission that he might have had to his credit before he was paroled. [Toward Unity: Criminal Justice and Corrections (The 'Ouimet Report'), (Ottawa: Queen's Printer, 1969), p. 350.]
13. P. McNaughton-Smith, "Permission to Be Slightly Free: A Study of the Granting, Refusing and Withdrawing of Parole in Canadian Penitentiaries," Unpublished manuscript (mimeographed), n.d., pp. 6/4-6/5. See also Bowie, "Some Aspects of Parole in Canada," p. 199.
14. *Parole Act*, s. 15(2).
15. McNaughton-Smith, "Permission to Be Slightly Free," p. 6/10. The 399 male penitentiary inmates in McNaughton-Smith's sample were expected, if not paroled, to spend a total of 330,992 man-days in prison, or an average of 830 days per man.

[Two hundred and sixty-three] of them were refused parole. For them there was no saving by the Parole Board of time spent in prison. [Thirty-seven] men were granted parole and later lost it, and they . . . actually spent more time in prison than if parole had not existed. In this way they lost an estimated 6124 man-days, or an average 166 days each. The remaining 99 men were granted and kept their parole. Before release they spent between them 67,204 man-days in prison, or an average 679 days each. If not paroled they would have spent in prison 106,401 man-days, or 1075 days each. Thus the net saving to our sample . . . was 33,073 man-days, or almost exactly 10 per cent of what they would have spent if there had been no parole system. [P. 6/10]
16. F. P. Miller (former Member of the National Parole Board and Executive Director of the National Parole Service), personal communication to the Commission, January 1973.
17. This parole program is described in "An Experiment in the Supervision of Paroled Offenders Addicted to Narcotic Drugs: Final Report of the Special Narcotic Project," New York State Division of Parole, New York, 1960.

18. D. Dryden (Parole Service Officer, National Parole Service, Vancouver, British Columbia), personal communication to the Commission, December 22, 1972.
19. J. F. D. Selkirk (Parole Service Officer, National Parole Service, Vancouver, British Columbia), "National Parole Board Experimental Release of Drug Addicts," *The Canadian Journal of Corrections*, 6(1) (January 1964): 32.
20. J. F. D. Selkirk, "The Special Narcotic Addiction Project (SNAP I): Final Report," (Mimeographed), January 7, 1964, Addendum (n.d.), p. 1.
21. *Ibid.*
22. *Ibid.*
23. *Ibid.*, p. 2.
24. J. F. D. Selkirk, "Special Narcotic Addiction Project No. II: A Pilot Project for the Parole of Drug Addicts from the B.C. Penitentiary," (Mimeographed), n.d., p. 1.
25. *Ibid.*, pp. 3-4.
26. *Ibid.*, p. 51.
27. *Ibid.*, p. 52.
28. *Ibid.*, p. 54.
29. *Ibid.*, pp. 4-49.
30. A. Sleight (Consultant Psychiatrist, Canadian Penitentiary Service) and J. F. D. Selkirk, "Special Narcotic Addiction Project," Addendum to "Special Narcotic Addiction Project No. II: A Pilot Project" (see note 24), n.d., p. 5.
31. B. K. Stevenson (Regional Representative, National Parole Service, Vancouver, British Columbia), Memorandum regarding "Special Narcotic Addiction Projects," August 17, 1967, pp. 1-4.
32. A discussion of the performance of SNAP III parolees during their first ten and one-half months on parole is presented in B. C. Murphy (Research Officer, Matsqui Institution), "An Analysis of the First 10½ Months Post Release Experience of Delinquent Addicts from Treatment Research Programme I (TRP I)," (Mimeographed), June 1968.
33. R. O. Bishop (Parole Service Officer, National Parole Service, Vancouver, British Columbia), "First Report on Problems of the Narcotic Addiction Project No. 3," (Mimeographed), p. 1.
34. *Ibid.*, pp. 2-5.
35. Stevenson, "Special Narcotic Addiction Projects," p. 1.
36. J. F. D. Selkirk, D. L. G. Dryden and R. O. Bishop, personal communication to the Commission, June 26, 1972.
37. D. L. G. Dryden, "Report of Special Narcotic Addiction Project (1970)," (Mimeographed), May 7, 1971, p. 6.
38. T. G. Street (Chairman, National Parole Board), personal communication to the Commission, March 14, 1973. See also note 36.
39. T. G. Street, personal communication to the Commission, August 29, 1972. See also note 36.
40. California, Youth and Adult Corrections Agency, *Special Intensive Parole Unit, Phase IV*, "Synopsis of Parole Outcome Study" (Sacramento, 1965);

- see also, D. Lohman, A. Wahl and R. M. Carter, *The San Francisco Project: A study of Federal Probation and Parole*, School of Criminology, University of California, 1965 (Mimeographed) in Research Report No. 9 entitled "The Minimum Supervision Caseload: A Preliminary Evaluation" (September, 1966), p. 38. Both of these studies are cited in W. R. Outerbridge, "The Tyranny of Treatment. . . ?", *The Canadian Journal of Corrections*, 10(2) (April 1968): 378-387.
41. This information was presented to the Commission on June 26, 1972.
42. A. Byman (National Parole Service, Assistant District Representative, Vancouver, British Columbia), personal communication to the Commission, August 1, 1972.
43. *Ibid.*
44. *Day parole* "is granted during a period of imprisonment for special rehabilitation purposes, e.g. to permit an inmate to continue in his regular employment, take an extended period of training in an outside setting, or as a gradual release just preceding discharge at expiry of sentence. Under day parole, the inmate returns to the institution at night." (Canada, Department of the Solicitor General, *National Parole Board: Statistics 1970* [Ottawa, n.d.], in "Glossary of Terminology Used in the Report".)
45. Byman, personal communication to the Commission, August 1, 1972.
46. Selkirk, Dryden and Bishop, personal communication to the Commission, June 26, 1972.
47. *Ibid.*
48. R. Gillies (District Representative, National Parole Service, Edmonton, Alberta), personal communication to the Commission, October 11, 1972.
49. D. Rempel (District Representative, National Parole Service, Winnipeg, Manitoba), personal communication to the Commission, October 12, 1972.
50. R. S. Beames (District Representative, National Parole Service, Toronto, Ontario), personal communication to the Commission, October 25, 1972.
51. *Ibid.*
52. L. Genest (District Representative, National Parole Service, Montreal, Quebec), personal communication to the Commission, October 19, 1972.
53. Canada, National Parole Board, *An Outline of Canada's Parole System for Judges, Magistrates and Police*, n.d., p. 7.
54. T. G. Street (Chairman, National Parole Board), personal communication to the Commission, August 29, 1972.
55. *Ibid.*
56. *Ibid.*

Civil Commitment in California

INTRODUCTION

The California Civil Commitment Program for Narcotic Addicts (usually referred to as the Civil Addict Program [CAP]) was instituted in 1961. It won political acceptance by being presented as a form of control that would be at least as effective as imprisonment in keeping the addict off the street and would at the same time offer some attempt at treatment.¹ The intent of the program is expressed as follows in the legislation:

It is the intent of the legislature that persons addicted to narcotics, or who by reason of repeated use of narcotics are in imminent danger of becoming addicted, shall be treated for such condition and its underlying causes, and that such treatment shall be carried out for non-punitive purposes not only for the protection of the addict, or person in imminent danger of addiction, against himself, but also for the public. Persons committed to the program provided for in this chapter who are uncooperative with efforts to treat them or are otherwise unresponsive to treatment nevertheless should be kept in the program for purposes of control. It is the further intent of the Legislature that persons committed to this program who show signs of progress after an initial or subsequent periods of treatment and observation be given reasonable opportunities to demonstrate ability to abstain from the use of narcotics under close supervision in outpatient status outside of the rehabilitation center²

JURISDICTION OVER PROGRAM

The California program is under the jurisdiction of the Department of Corrections. Commitment is made to the custody of the Director of Corrections. The California Rehabilitation Center (hereinafter referred to as "CRC"), which was established to carry out the program, is under the direct supervision of a superintendent, who is an employee of the Department of Corrections. CRC is referred to in the legislation as a "narcotic detention, treatment and rehabilitation facility", and its principal purpose is described as "the receiving, control, confinement, employment, education, treatment

and rehabilitation of persons under the custody of the Department of Corrections or any agency thereof who are or have been addicted to narcotics or who by reason of repeated use of narcotics are in imminent danger of becoming addicted.”³ The provisions of the Penal Code apply to CRC “as a prison under the jurisdiction of the Department of Corrections and to the persons confined therein insofar as such provisions may be applicable”.⁴ It is assumed that jurisdiction was entrusted to the Department of Corrections because of the importance attached to effective control. The program of CRC embodies a comprehensive and specialized attempt to achieve the objectives of control, treatment and rehabilitation, including supervision in the community.

KINDS OF COMMITMENT

The program provides for two kinds of commitment, voluntary and involuntary. There is voluntary and involuntary commitment outside the criminal law process, and involuntary commitment, within the criminal law process, of a person who has been convicted of a criminal offence. Despite the relationship of such commitment to the criminal law process, it is referred to as “civil commitment”. This reflects the fact that it has been held to be unconstitutional, as cruel and unusual punishment, for a state to make addiction a criminal offence.⁵ Despite penal characteristics, the California program has been held to be constitutional.⁶ This conclusion followed almost inevitably from the opinion expressed by the Supreme Court in *Robinson v. California* that while it was unconstitutional to impose punishment for addiction it was constitutional to provide for the “compulsory treatment” of the addict.

Commitment exists under the California legislation for persons who are addicted to the use of narcotics (which for such purposes include the opiate narcotics and cocaine, but not cannabis) or who are, by reason of repeated use of narcotics, in imminent danger of becoming addicted.

Voluntary Commitment

A person who believes himself to be addicted to narcotics or in imminent danger of becoming addicted may report such belief to the district attorney who may, if there is probable cause, petition the superior court for the commitment of such person.⁷

Involuntary Commitment Outside the Criminal Law Process

Persons Who May Apply For Commitment. Anyone who believes that a person is addicted to the use of narcotics or by reason of the repeated use of narcotics is in imminent danger of becoming addicted to their use⁸ may

report such belief under oath to the district attorney who may, when there is probable cause, petition the superior court for the commitment of such person.⁹

Any peace officer or health officer who has reason to believe that a person is addicted to the use of narcotics or by reason of the repeated use of narcotics is in imminent danger of becoming addicted to their use may take the person, for his best interest and protection, to the county hospital or other suitable medical institution designated by the board of supervisors of the county.

Upon written application of the peace officer or the health officer, the physician or superintendent in charge of the designated hospital or institution may admit the person believed to be addicted to the use of narcotics or in imminent danger of becoming addicted to their use. The application shall state the circumstances under which the person's condition was called to the officer's attention; the date, time and place of taking the person into custody; and the facts upon which the officer has reasonable cause to believe that the person is addicted to the use of narcotics or by reason of the repeated use of narcotics is in imminent danger of becoming addicted to their use. The application shall be signed by the officer, and a copy of the application shall be presented to the person prior to his admittance to the hospital or institution.

Within 24 hours of admittance, a physician shall conduct an examination to determine whether the person is addicted to the use of narcotics or by reason of the repeated use of narcotics is in imminent danger of becoming addicted to their use and may provide the person with medical aid as necessary to ease any symptoms of withdrawal from the use of narcotics.

If, after examination, the physician does not believe that the person is addicted to the use of narcotics or by reason of the repeated use of narcotics is in imminent danger of becoming addicted to their use, he shall immediately report his belief to the physician or superintendent in charge of the hospital or institution, who shall discharge the person immediately.

If, after examination, the physician believes that further examination is necessary to determine whether the person is addicted to the use of narcotics or by reason of repeated use of narcotics is in imminent danger of addiction to their use, he shall prepare an affidavit which states that he has examined the person and has such belief. The physician or superintendent in charge of the hospital or institution thereupon shall have the power to detain the person for not more than an additional 48 hours for further examination.

If, after such further examination, the physician does not believe that the person is addicted to the use of narcotics or by reason of the repeated use of narcotics is in imminent danger of becoming addicted to their use, he shall immediately report his belief to the physician or superintendent in charge of the hospital or institution, who shall discharge the person immediately.

If, after such examination, or further examination, the physician believes that the person is addicted to the use of narcotics or by reason of the repeated use of narcotics is in imminent danger of becoming addicted to their use, he shall prepare an affidavit which states that he has examined the person and has such belief, and which states the time and date of the examination and, if appropriate, the further examination. The physician or superintendent in charge of the hospital or institution thereupon shall report such belief to the district attorney, who may petition the superior court for a commitment of the person to the Director of Corrections for confinement in the narcotic detention and rehabilitation facility.

Unless the petition of the district attorney, accompanied by the affidavit of the examining physician, is filed in the superior court within 72 hours after admittance to the hospital or institution, excluding Saturdays, Sundays and judicial holidays, the physician or superintendent in charge shall discharge the person immediately.¹⁰

Examination and Hearing on Application for Commitment Outside the Criminal Law Process. Upon the filing for commitment the court shall order the person sought to be committed to be examined by two physicians. In the case of an application, pursuant to report by a physician or superintendent of a hospital or institution, the court need not order the person sought to be committed to be examined by any other physician or physicians.

The court may also order that the person be confined pending hearing in a county hospital or other suitable institution designated by the board of supervisors of the county if the petition is accompanied by the affidavit of a physician alleging that he has examined such person within 72 hours prior to the filing of the petition, including Saturdays, Sundays and judicial holidays, and has concluded that, unless confined, such person is likely to injure himself or others or become a menace to the public. In any case in which a person is so ordered to be confined, it shall be the duty of the person in charge of the institution to provide the person ordered confined with medical aid as necessary to ease any symptoms of withdrawal from the use of narcotics.

When the court orders that a person be examined it appoints two examining physicians. If the physicians report that the person is not addicted nor in imminent danger of becoming addicted the petition for commitment is dismissed. If the report is to the contrary, the person is brought before the court, which informs him of his right to counsel and to a defense, including the right to call witnesses and to cross-examine. If he is unable to pay for counsel the court appoints counsel and fixes the compensation to be paid by the county where the person cannot be represented by a public defender.¹¹

At the hearing there is a right to have the examining physicians present and cross-examined.¹²

If the court determines after hearing that the person is addicted or in imminent danger of becoming addicted it must order the person committed to the custody of the Director of Corrections. Otherwise the petition is denied.¹³

The right to a hearing on this issue of addiction or imminent danger of becoming addicted may be waived.¹⁴

If the person committed or a friend of his is "dissatisfied with the order of commitment" he may obtain a trial by jury on the issue of addiction or imminent danger of becoming addicted. The order of commitment must not be read to the jury nor alluded to in the trial. The petition is dismissed unless a verdict of addiction or imminent danger of becoming addicted is found by at least three-fourths of the jury.¹⁵

Involuntary Commitment of Convicted Persons

Involuntary commitment within the criminal law process takes place following conviction in a municipal or justice court, or in a superior court, or following revocation of probation. Upon conviction of a defendant of any crime in a municipal or justice court, or following revocation of probation, previously granted, whether or not sentence has been imposed, if it appears to the judge that the defendant may be addicted or in imminent danger of becoming addicted, the judge must adjourn the proceedings or suspend the imposition or execution of sentence, certify the defendant to the superior court and order the district attorney to file a petition for a commitment of the defendant to the Director of Corrections for confinement in the narcotic detention, treatment and rehabilitation facility. Upon the filing of such petition there is a hearing in the superior court as in the case of commitment outside the criminal law process, with the same right to trial by jury if the person who is committed is dissatisfied with the order of commitment. The same procedures apply where the conviction has taken place in the superior court.

If the examining physicians or the court find that the person is not addicted nor in imminent danger of becoming addicted he is returned to the criminal court for such further proceedings on the criminal charges as are considered to be warranted.¹⁶

PERSONS WHO ARE NOT ELIGIBLE FOR COMMITMENT

The provisions for commitment following conviction do not apply to persons who have been convicted of murder, assault with intent to commit murder, attempt to commit murder, kidnapping, robbery, burglary in the first degree, mayhem, or certain other crimes of violence involving bodily harm or attempt to inflict bodily harm.¹⁷

In order to assist judges in determining the commitment eligibility of addicts, the California Department of Corrections regularly provides the court with a set of official eligibility guidelines.¹⁸ Basically, persons whose

primary problem is opiate addiction, who are manageable within CRC's resources, who have only minimally trafficked in narcotics, who are over 18, and whose previous commitments have mainly been to county jail facilities, are "suitable" for the program. Persons who have a history of excessive criminality, arson or assaultive behaviour, who have been extensively involved in drug trafficking, who are extremely recalcitrant or therapeutically unresponsive, who suffer from certain medical or psychiatric disorders (e.g. sex deviance, chronic psychosis, senility), who have repeatedly absconded or experienced addiction relapse in the past, or who require extreme protective custody (e.g., homosexuals, persons having to serve a subsequent period of institutionalization), are considered unsuitable for commitment to CRC. In addition, judges are advised to give "careful consideration" to parolees and persons who have other confinements pending or outstanding deportation warrants before committing them to CRC.

The legislation provides that in unusual cases, where the interest of justice best be served, the judge may, with the concurrence of the district attorney and defendant, order commitment notwithstanding that the defendant falls within an ineligible category.¹⁹

CRC is not obliged to receive a person who has been committed. If the Director of Corrections concludes that the person, because of excessive criminality or for other relevant reason, is not a fit subject for confinement or treatment in such narcotic detention, treatment and rehabilitation facility, he shall return the person to the court in which the case originated for such further proceedings on the criminal charges as the court may deem warranted,²⁰ or in the case of commitment outside the criminal law process, he may order the person discharged.²¹ According to one commentator there was initially some judicial resentment at committed addicts being refused by CRC, and there has since been a decrease in the rate of rejections.²² Up to the end of 1969 only 584 persons were returned to the courts as "unfit" for treatment out of a total of 11,995 commitments, or approximately 4.9% of all commitments.²³

Despite the restrictive eligibility criteria for civil commitment, CRC is apparently increasingly accepting violent and recidivist addicts.²⁴ To some degree, this must be seen as the result of increasing CRC vacancies, but it is probably also the consequence of many judges viewing the commitment "guidelines" as too exclusionary.

In the first year of the program only about 55% of the commitments were convicted felons, around 25% were convicted of misdemeanour offences, and approximately 20% were not criminally charged.²⁵ The averages for the period from 1962 through 1968 were: convicted felons—70%; convicted misdemeanants—17%; non-criminally charged—13%. By 1971, however, the figures were: convicted felons—91%; convicted misdemeanants—6%; non-criminally charged—3%. (The figures for the period 1962 to 1968 and the year 1971 apply to male admissions, but the proportionate distribution is substantially the same for females.) The latest information received

by the Commission is that 93% of the admissions of the Center are convicted felons and only 3% misdemeanants.²⁶ Voluntary commitments have never represented more than two to four per cent of all admissions in any year.²⁷

Convicted felons, who would ordinarily be sentenced to lengthy prison terms, are increasingly becoming the mainstay of CRC commitments. The relatively inflexible nature of the commitment period favours felons because of the shorter "sentence", earlier "parole" opportunity and more liberal atmosphere provided by CRC than any of the medium or maximum security prisons. Convicted addict-felons civilly committed to CRC are likely to receive "parole" (outpatient status) within 7½ months while those sentenced to prison are not likely to receive parole for 42 months.²⁸

This same relative inflexibility of the commitment period works to the disadvantage of persons convicted of a misdemeanour offence (particularly prostitution) for their maximum criminal sentence is only one year while they may spend up to seven (and in rare cases ten) years in the Civil Addict Program. It is in response to this gross inequity that the superior court judges are increasingly hesitant to send convicted misdemeanants to CRC. Recently, one of the more common sentencing alternatives for convicted misdemeanant addicts appears to be incarceration in a county jail (for not more than one year), with the sentence to be served, in whole or in part, as the probation officer directs. In many cases this means involvement in a community drug agency's programs during the day, with nights spent in jail.²⁹ Alternatively, a judge may order an addict to enroll in a community methadone program or allow him to serve his misdemeanour sentence in a state mental hospital.

Although there are no data to support this contention, it can probably be assumed that the recent introduction of methadone maintenance programs in California has not only provided committing judges with a preferable alternative to CRC for misdemeanour offenders, but it has also attracted a large percentage of that small group of addicts who would traditionally have been "voluntary" commitments to CRC.

MAXIMUM PERIODS OF COMMITMENT

Involuntary commitment is for a maximum period of seven years, to which there may be an extension in exceptional cases of a maximum of three years. Voluntary commitment is for a maximum of two and a half years. This difference was meant to encourage voluntary commitments, but, as indicated above, only a very small proportion of admissions have resulted from voluntary commitment. An observer has described the manner in which addicts have been persuaded to seek "voluntary" commitment as follows:

.... Frequently, following the examination, those people who have been ... called "addicts" or "imminently" in danger of becoming addicted, are given the opportunity to "volunteer" for commitment. They are told, with some reason, that if they do not volunteer for a two and a half year commitment, they will be involuntarily committed for seven.³⁰

THE RESIDENTIAL PROGRAM

Male inpatients live in residential units which house 60 persons each. The residential unit is the primary therapeutic unit with an eight-hours-a-day, five-days-a-week "counsellor" in each unit. Over 90% of the male inpatients are accommodated at the California Rehabilitation Center near Corona, which is a medium security institution. Most female inpatients were also housed at Corona until 1969, when the Corona women's section was closed down and the women were transferred to a wing of the Patton State Hospital in San Bernadino. The Patton State Hospital setting has been described by the Director of CRC as "a much more minimum security institution" than Corona. The escape rate at Patton is about four per cent annually while it is less than one per cent at Corona.

The California Rehabilitation Center at Corona has the security characteristics of a penal institution. It is surrounded by a barbed-wire fence, has armed guards, and maintains strict restrictions on visiting and communications between inmates and the outside community. Escape, or attempt to escape, from custody under the Civil Addict Program is a crime punishable by imprisonment for up to seven years.³¹

CRC's staff consists of administrative, correctional and rehabilitative personnel. Administrative personnel account for about 10% of the staff, the correctional personnel or guards, for about 70%, and the rehabilitative personnel, consisting of counsellors, psychiatrists, psychologists, and academic and vocational teachers, about 20%. There are approximately $3\frac{1}{2}$ guards and one rehabilitation staff member for every 30 inpatients. As of September 1972 the women's facility had approximately a 2:1 inpatient to staff ratio (80 staff for 185 residents) while the men's facility's inpatient to staff ratio was slightly poorer than 3:1 (470 staff for about 1,600 residents).

The superintendent of CRC has said that the counsellors have "full college graduation, some experience in working with delinquents, or working in a correctional setting or in a social service agency". Most of the counselling staff have a Department of Corrections occupational background. Recently CRC has begun to hire ex-addicts for both counselling and non-counselling positions.

Upon arrival at CRC a new inpatient is assigned to a group of 60 (male facilities) or 45 (female facilities) residents with whom he or she may remain until transfer to outpatient status. Psychologists and counsellors initially administer a battery of psychometric tests and compile the new resident's social, criminal and narcotic-use history. "Work therapy", vocational and academic training, and recreational and religious facilities are available, as are marital and family counselling (excluding conjugal visits).

CRC's therapeutic program rests on the assumption that it is possible to change behaviour patterns by modifying certain personality factors. Drug dependent persons are conceived of as immature persons who must develop

a sense of personal and social responsibility that will enable them to live drug-free and crime-free lives.³² The therapeutic goals, then, include not only continuing narcotics abstinence but also personality changes. As one observer has put it:

It is hypothesized that drug use is merely a symptom of aberrant personality patterns and inadequate socialization and that it is useless to hope to change the symptoms without effecting changes in patterns of thinking and reacting.³³

Until a few years ago the heart of the rehabilitation program, particularly at Corona, was daily group therapy, but there have been significant changes since 1969 in the direction of more individualized and heterogeneous programs. Each dormitory-unit may have a different treatment approach and differential interpretations of "group therapy". Some dormitories, for example, are purely vocationally or academically oriented. Some have intensive small-group programs, some are oriented towards behavioural modification, and some are deliberately modelled after therapeutic communities with extensive use of the large-group therapy format. Initial assignment to one or another of these dormitory-programs is completed within two weeks after CRC reception by a "service unit" at Corona and a "classification committee" (composed of staff and inpatients) at Patton State Hospital. Transfers from one dormitory to another can be made at any time, pending counsellors' approval.

Some observers have reported that new inpatients quickly learn to view the group therapy sessions (whether "small" or "large") as a game ("grouping") in which they strive to present themselves as reformed, responsible and mature persons since "it is largely their performance in the group which determines when they will be permitted to leave on parole."³⁴ Furthermore, the 60-man residential-therapy units apparently play the game together, covering for each other and teaching new inpatients various tricks and strategies.³⁵

RELEASE TO OUTPATIENT STATUS

Release to outpatient status and discharge from the program are supervised by the Narcotic Addict Evaluation Authority, which is composed of four members appointed by the Governor of California for a term of four years. The members are to be drawn as far as possible from persons having a "broad background in law, sociology, law enforcement, medicine, or education", and "a deep interest in the rehabilitation of narcotic addicts".³⁶

When a person who has been committed has recovered from his addiction or imminent danger of addiction to such an extent that, in the opinion of the Director of Corrections, release in an outpatient status is warranted, the Director shall certify such fact to the Authority.³⁷ Cases in which there has not been a certification (or recommendation) by the Director for release to outpatient status are automatically brought once a year before the Authority

for consideration. The Authority makes the formal decision to release to outpatient status. The Director of Corrections is responsible for the supervision of persons in outpatient status.

Formerly there was a six months' mandatory period in inpatient status for all commitments. There is now no minimum inpatient period, and, technically speaking, committed persons can be automatically released to outpatient status. The proportion of committed persons in outpatient status has increased in recent years. The inpatient population of CRC grew steadily to a total of 2,586 at the end of 1968. Since that date, however, CRC's inpatient population has declined by about 36%. At the end of 1971 the California Civil Addict Program had approximately 8,400 persons committed to its custody. Of these, about 1,800 were inpatients, 5,351 were "active" outpatients, and the remainder were outpatients who had absconded.³⁸

Inpatients are recommended for release to outpatient status when the staff feels they have made sufficient progress.³⁹ An important factor in the decision is the extent to which the community to which the addict is returning is able to provide him with a reasonable basis for leading a drug-free life through employment and satisfactory relationships.⁴⁰

Prior to the removal of the mandatory minimum six-month period in residence, the median inpatient period was about one year (range: 10 to 15 months for males and 10 to 12 months for females). In recent years, however, there has been increasing pressure to reduce the period of residence, and in 1971, the median time in residence for users dropped to seven months for males and eight months for females. Non-criminally charged residents have essentially the same median period in residence as those who have been criminally convicted, and there is no significant difference in median period of residence between those convicted of felonies and those convicted of misdemeanours.

CRC was engaged in an experimental "direct community release program" from July 1st, 1971 until June 30th, 1972, when federal funding was curtailed. Eligible commitments were sent directly to Parkway Center (a Los Angeles-based halfway house of CRC), where, after two to six weeks of relative residential freedom, they were released to outpatient status. This project was designed to handle about ten commitments a week, but because the Narcotic Addiction Evaluation Authority was not too favourably disposed towards it, the direct release program was receiving only one or two commitments per week. The relative success of this program is presently being evaluated.⁴¹

In addition, since November 1970, CRC has had an experimental "early release program" whereby the new commitments identified as the ten per cent "most likely to succeed" are released to outpatient status after "an average of about 53 days" on inpatient stay.⁴² An earlier experiment with the effects of early release indicated that after one year only 16% of the experimental group was still in good outpatient standing as compared to

32% of the control group who had been released in the usual manner.⁴³ This experiment, however, did not choose the ten per cent most likely to succeed as in the early release program. It is felt that the results would have been better had it done so.⁴⁴ With respect to the rehabilitative effect of the marked reduction in the initial inpatient stay, from a mean of 12 months in 1968 to a mean of about 8½ months in 1971, Ronald W. Wood, the Superintendent of California Rehabilitation Center, said:

I think we do just as well in a shorter period of time as we were doing in the longer period of time. I don't think there is any relationship between time as such and whether the individual is really going to be able to make it on the outside.⁴⁵

Supervision in outpatient status is similar to parole. Outpatients enter approximately a 30-man caseload supervised by especially trained agents who work solely with releases from the Center. As described by Wood,

...the outpatient program offers close but supportive supervision, small caseloads, antinarcotic testing, weekly group therapy, limited outpatient psychiatric care, job placement assistance, and halfway houses.⁴⁶

Formerly, four routine and one "surprise" nalline tests were administered monthly for at least the first six months in outpatient status in order to detect a return to the use of narcotics,⁴⁷ but nalline testing was curtailed for budgetary reasons when CRC began to allow outpatient use of methadone.⁴⁸ Regular urinalysis was abandoned for budgetary reasons in late 1965 or early 1966. Urinalysis for opiates, barbiturates, amphetamines and, if relevant, methadone, is conducted on a "surprise" basis for all outpatients. This surprise testing, however, is routinely patterned and most persons on outpatient status are aware of the testing pattern and can, if not readdicted, schedule their drug use accordingly. Furthermore, urinalysis (although felt to be much more reliable than nalline) is still inaccurate (both "false positives" and "false negatives") about 20% of the time. In the summer of 1971, a validity check of CRC's contracted laboratory services revealed a urinalysis inaccuracy rate of 50%. The present 20% inaccuracy rate is a relatively recent development and is apparently considered acceptable.⁴⁹ Superintendent Wood has stated, however, that CRC's present urinalysis program is 95% accurate, although he admitted that quality control problems had obliged CRC to change urinalysis laboratories about four times in the last ten years.⁵⁰

CRC has two halfway house facilities in Los Angeles, one for men and one for women. They serve as temporary residences for outpatients desiring release to Los Angeles who do not have any personal resources in that city. There are also several other halfway houses in the state which are used by CRC. In the opinion of observers, however, the halfway houses have not proved any more successful than direct release.⁵¹ The Center does not operate any sheltered workshops.

METHADONE MAINTENANCE

An important change in the policy with respect to outpatient status has been the decision to permit outpatients to enter an approved methadone maintenance program.⁵² When methadone maintenance was first introduced in California, an outpatient at CRC had to obtain his parole agent's permission before he could enter such a program. At present, however, an outpatient may, in many cases, enter a private methadone program of his own selection and then inform his parole agent. At the end of 1971, 11% of all "active" outpatients were in such programs. By May 1972, 17% were on methadone and 20% were on private methadone program waiting lists.⁵³ It is expected that 50% of all outpatients of CRC will be voluntarily participating in methadone maintenance programs by the end of 1973.⁵⁴

In addition to these "private" programs, the California Department of Corrections has, since June of 1971, sponsored its own experimental methadone program for 200 addicts, 100 of whom are outpatients of CRC; the other 100 are parolled felon-addicts.⁵⁵

SUSPENSION OF OUTPATIENT STATUS AND DISCHARGE FROM THE CIVIL ADDICT PROGRAM

As indicated above, the maximum commitment period, including inpatient and outpatient programs, is two and one half years for voluntary commitment and seven years for involuntary commitment, unless there is an extension of three years, in which case the total maximum period for involuntary commitment is ten years.

An outpatient can, however, be completely discharged from the program after a minimum of two years free from narcotics or three on methadone maintenance while abstaining from other narcotics, if he has otherwise complied with the conditions of his outpatient status, and if the Narcotic Addict Evaluation Authority concurs.⁵⁶

A single member of the Narcotic Addict Evaluation Authority may suspend the release to outpatient status and cause an individual to be returned to CRC if he believes that a violation of the conditions of outpatient status has occurred.⁵⁷ When a person is returned to inpatient status, it is necessary to obtain the approval of the Narcotic Addict Evaluation Authority before the individual can once again be released as an outpatient.

The grounds for return to inpatient status include illicit drug use, criminal arrest, poor "adjustment" (for example, failure to attend group counselling, alcohol abuse, associating with known addicts or delinquents, failure to maintain regular or acceptable employment, changing jobs or residences without permission), and absconding.⁵⁸

Restrictions on outpatient status have been held to be "slightly more encompassing than parole restrictions on non-addict felons and are usually administered more strictly".⁵⁹ While the ultimate authority for the decision as to suspension of outpatient status rests with the Narcotic Addict Evalu-

ation Authority, the crucial recommendation is made by the supervising agent. It appears that supervising agents are flexible and are becoming increasingly tolerant.⁶⁰ Upon detection of narcotics use the parole agent may, for example, allow the outpatient to "clean himself up" and return for another test a week later, or he may temporarily suspend his outpatient status, reinstating such status upon evidence of non-use.

One recent innovation in the Civil Addict Program is "limited placement". Although not described in the law, limited placement allows a re-addicted outpatient to return voluntarily to inpatient status for a maximum period of 60 days. This permits the individual to withdraw from heroin in the institution while assuring him of a rapid release from confinement. Once returned to outpatient status, the individual begins anew the drug-free period entitling him to early discharge.

Outpatients who are apprehended for committing a felony are often returned to CRC without being prosecuted.⁶¹ In such cases district attorneys are apparently prepared to forego prosecution if the outpatient is returned to CRC.

Less than 20 per cent of the outpatients in the program have remained on outpatient status for three consecutive years and thereby managed to obtain an early discharge from the program. Most are returned to CRC at least once for further inpatient treatment. While an outpatient may have his outpatient status revoked for violating any one of several parole conditions, the most common reason for such suspensions is illicit drug use. Fifty per cent of the first 1,209 outpatients released by the Center to outpatient status between June 1962 and June 1964 were detected using opiates and six per cent marijuana or "dangerous drugs" during their first year on outpatient status.⁶² There were similar rates of drug use detection for first year releases from 1966 through 1968 with a dramatic decline in detected drug use beginning in 1969.⁶³

For most persons who are committed under the Civil Addict Program of California, the Program operates as a "revolving door" in which they continuously shuttle between inpatient and outpatient status until they are mandatorily discharged. By the end of 1968, for example, only 7½% of those male commitments first released to outpatient status in 1962 had been returned to their committing court for recommended pre-expiration date discharges from the Program. For 1963 first releases to outpatient status the discharge figure was about 14% by the end of 1968, and for 1964 first releases to outpatient status about 15% by the end of 1968.⁶⁴

One observer has described the process as follows:

...the typical addict committed to this program will spend three and a half or four years locked up, perhaps a year 'on the lam' and only two or two and a half years of the seven, free in the community.⁶⁵

Very few committed persons are able to complete the continuous drug-free period required for early discharge before being returned to in-

patient status. For example, only 35% of the first 1,209 persons placed on outpatient status between June 1962 and June 1964 remained in "good standing" (that is, active outpatient status) after one year. After three years (the minimum continuous drug-free period in outpatient status required at that time for early discharge from the Program) only 16% were still in "good standing".⁶⁶ The following summation has been made of results between 1962 and 1968: only about 30% of those released to outpatient status remained in such status after one year; 25% were in "good standing" after two years; and only 17% were discharged as "successes" after three consecutive years in outpatient status.⁶⁷

Outpatients who have been returned to the California Rehabilitation Center and released again after a second period of institutionalization have tended to fare even more poorly than those on first release to outpatient status: 26% in "good standing" one year after second release to outpatient status, as opposed to 35% in "good standing" one year after first release.⁶⁸

It has been further observed:

... that a large proportion of those who 'succeed' are not typical of the majority of the addict population. They are individuals who may have had little or no contact with opiates or were primarily users of opiate-containing syrups or tablets.⁶⁹

Some of the "successes", as well, are atypical by virtue of their psychotic or mentally defective states.⁷⁰

There has, however, been a distinct improvement in the success rate in the last few years. This is attributed, in some measure, to more lenient enforcement of the conditions of outpatient status. The improved results have been described by certain observers as follows:

... with the institution of more lenient conditions for those remaining on outpatient status in 1970, the current percentages of one-year successes on first release are 45% for men and 50% for women.⁷¹

Out of about 8,400 persons in the Program as of December 31, 1971 (inpatient and outpatient), 1,995 were returned to the institution in 1971 for violation of their conditions of release. In the same year 644 successfully completed the Program and were recommended for discharge. This was nearly double the number who successfully completed the Program in 1970.⁷²

The policy of increased leniency towards violations of the conditions of outpatient status has been described by the Center as follows:

The policy of the Board [the Narcotic Addict Evaluation Authority] has been to give these addicts breaks; that is, reinstatements or limited placements (short-term returns to the institution) when they are able to work with their parole agent and not get involved in criminality. When they do get involved in criminality, they are, as a rule, returned to the institution for longer periods of treatment. At the present time the average length of stay in the institution is eight months for new commitments and about three months for those returned as a result of violating the conditions of their release.⁷³

From September 15, 1961 through December 31, 1971 there were total commitments of 16,713: men—14,590; women—2,123. As of December 31, 1971 a total of 1,685 men and women had been recommended for discharge from their civil commitment after having completed two or three consecutive drug-free years in the community.⁷⁴

The procedure upon discharge is as follows. Convicted persons are returned to their committing court, where they are discharged from the Program and returned to their original convicting court (municipal, justice or superior), which may resume the criminal proceedings or dismiss them. If the defendant is sentenced, any time served in the Civil Addict Program is credited to the length of sentence imposed. Non-criminally charged persons are simply discharged from the Program by the Narcotic Addict Evaluation Authority.⁷⁵

If a person is retained in the Program for the maximum period of seven years in the case of involuntary commitment, he is then returned to his committing court. Unless the Director of Corrections recommends an extension of the commitment period (for a maximum of three additional years) and the committing court concurs, non-criminally charged persons are discharged from the Program and convicted persons are discharged and returned to their original convicting court for further proceedings, if any.⁷⁶

Persons who are detained for an additional three years must be released from the Civil Addict Program on or before expiration of ten years from the date of the original commitment.⁷⁷

Where convicted persons are recommended for discharge before the maximum period of commitment and returned to their convicting court, the usual procedure, at least in northern California, in the case of conviction for a misdemeanor, is immediate release, and in the case of conviction for a felony, a nominal sentence of a few days to be served in the county jail.⁷⁸

EVALUATION

In the *Treatment Report* we made some reference to critical evaluation of the California Civil Addict Program.⁷⁹ John C. Kramer, who was Chief of Research of the Program for three years, was severely critical of it when he wrote in 1970. His general conclusion was that the Program was essentially one of imprisonment under the guise of treatment, and that it did not appear to be more successful in rehabilitation than the regular prison programs for addicts in California.⁸⁰

While there has been no systematic research comparing the success of those on outpatient status with paroled felon-addicts, an officer of the Department of Corrections has expressed the opinion that the latter probably do better "because, if they are returned to prison, they will probably end up doing eighteen months in prison versus two or three months at CRC".⁸¹ He observed, however, that comparison is difficult between the Civil Addict Program and the "felon program" because in the latter there is no regular reporting of drug use.

The Civil Addict Program must be evaluated with respect to its goal of treatment and its goal of control. With respect to treatment with a goal of abstinence there is no clear evidence that it is more successful than regular imprisonment and parole. In fact, however, there has been no controlled comparison of the two approaches. Nor do there appear to have been any follow-up studies of CRC commitments after discharge from the Program. Success is measured essentially in terms of good standing in outpatient status and the number of addicts who obtain early release through non-detection of illicit narcotics use for two, or in the case of methadone maintenance, three years. It is noteworthy, however, that while over 90% of the persons in the Civil Addict Program are committed after being convicted of a felony, only about three per cent are returned from outpatient status for a new felony conviction.⁸² This statistic must be read, however, in the light of the fact, noted above, that a high proportion of outpatients who commit felonies are returned to inpatient status without prosecution.

The chief claim of the California Program is that regardless of its relative success as a treatment measure it is effective as a measure of control. This was the function which was stressed when the Program was adopted, and it has been repeatedly emphasized in the literature concerning the Program. Its chief claim to support has always been that it keeps a significant number of addicts off the streets and out of drug-related crime. The Program has also emphasized the economies effected by the increasing shift of emphasis to outpatient status. These claims are reflected in the following statements from literature published by the Program:

The Narcotic Addict Outpatient Program staff have been able to control thousands of hard core addicts with the least expense to the public . . .

The cost of maintaining a person on outpatient status is about \$850.00 per capita while the cost of maintaining a person in the institution is about \$3,900 per capita. Thus the Taxpayers have been saved considerable expense by decreasing the population in the institution and controlling these hard core narcotic addicts in the community.⁸³

The case for control was stated by Roland W. Wood, Superintendent of the California Rehabilitation Center, in 1967:

Upon commitment to the Civil Addict Program at the California Rehabilitation Center persons who are uncooperative with efforts to treat them or are otherwise unresponsive to treatment nevertheless may be retained in the program for purposes of control. After a careful evaluation of experience in several jurisdictions (as well as our own), a long period of legal control was necessarily provided for therapeutic reasons. Without a legally enforceable commitment, a very large percentage of addicts will not undertake treatment. Given the opportunity, an extremely high percentage of addicts will leave treatment before medically indicated. Also, without a legally enforceable commitment, there is no effective way to insure post-institutional treatment. The lack of such treatment has been widely blamed for the high rate of failure in other efforts to control and treat addiction.⁸⁴

Observers concede that the Program appears to have been fairly effective in its control objective—although it has an absconding rate of about 20%⁸⁵—and this is attributed in some measure to the fact that the Program comes under the jurisdiction of the Department of Corrections. Wood has explained the reasons for assigning the Program to Corrections rather than a public health jurisdiction:

The decision was deliberately made, by the California Legislature, for specific and sound reasons, to place responsibility for the state-level program of handling narcotic addicts in California, with the Department of Corrections. Narcotic addicts are typically delinquently-oriented and most of them have long histories of anti-social action. In most cases, addiction is not the only problem, since most addicts are also thieves, burglars, robbers, forgers, and sellers of narcotics. Some addicts may be hostile, rebellious, and assaultive as well. In fact, some addicts employ every possible means of escape and may go to great lengths to obtain narcotics during confinement. The narcotics addict also poses a management problem which is familiar to people involved in correctional work, but in some aspects clashes with commonly-held mental health concepts. Another feature of the Department of Corrections' program which was instrumental in influencing this decision to place responsibility with the Department of Corrections, was the existence of a highly-developed professional aftercare service with experience in the post-institutional care of narcotic addicts under parole supervision.⁸⁶

The California Program has shown a definite trend away from institutionalization and towards supervision in the community. It is estimated that at the end of 1971 about 25% of all commitments were in residence and 75% were in the outpatient program.⁸⁷

It is estimated that about 23% of the addict population of California is in the Civil Commitment Program.⁸⁸

One reason for the failure of civil commitment programs in the United States to attract a higher proportion of the addict population has been the reluctance of judges to order commitment in cases where the total period in custody may be considerably longer than any prison term which could reasonably be imposed for the crime under consideration.⁸⁹ It has been suggested that with greater emphasis on early release into the community and with increasing use of methadone maintenance to make such release more feasible, this judicial reluctance could conceivably diminish.

NOTES

1. J. C. Kramer, "The State Versus the Addict: Uncivil Commitment," *Boston University Law Review*, 50(1) (1970): 1.
2. *California Narcotic Rehabilitation Act (NRA)*, Welfare and Institutions Code, Division 3, Chapter 1, Article 1, section 3000.
3. *NRA*, section 3001.
4. *NRA*, section 3305.
5. *Robinson v. California*, 370 U.S. 660 (1962).
6. *In re De La O*, 59 Cal. 2d 128, 28 Cal. Repr. 489, 378 2d 793, cert. denied, 374 U.S. 856 (1963).
7. *NRA*, section 3100.
8. *In People v. Victor*, 62 Cal. 2d 280, 393 P. 2d 391, 42 Cal. Repr. 199(1965), the California Supreme Court held that to be in "imminent danger of becoming addicted" within the meaning of the statute a person must not only have made "repeated use of narcotics" or be "accustomed or habituated" to their use, but such use or habituation must have reached the point that he is in imminent danger "of becoming emotionally or physically dependent on their use."
9. *NRA*, section 3100.
10. *NRA*, section 3100.6.
11. *NRA*, section 3103.5.
12. *NRA*, section 3106.
13. *NRA*, section 3106.5.
14. *NRA*, section 3107.
15. *NRA*, section 3108.
16. *NRA*, sections 3050 and 3051.
17. *NRA*, section 3052.
18. California, Department of Corrections, *Civil Addict Program: Guidelines and Criteria for Those Eligible*, mimeographed (June 1, 1972).
19. *NRA*, section 3050.
20. *NRA*, section 3053.
21. *NRA*, section 3109.
22. H. A. Katz, "California Rehabilitation Center: A Critical Look," *The International Journal of the Addictions*, 6(3) (1971): 546.
23. Ibid.
24. S. Gardiner (Superior Court Judge, San Raphael, California), personal communication to the Commission, July 14, 1972.
25. California, Department of Corrections, *Summary Statistics, Civil Commitment Program for Narcotic Addicts: 1968*. (Sacramento, California: California Office of State Printing, as of December 31, 1968).

26. R. W. Wood (Superintendent, California Rehabilitation Center, Corona, California), personal communication to the Commission, September 5, 1972.
27. W. H. McGlothlin (Psychologist, U.C.L.A., Los Angeles, California), personal communication to the Commission, July 7, 1972.
28. Wood, personal communication, September 5, 1972.
29. Gardiner, personal communication, July 14, 1972.
30. Kramer, "The State Versus the Addict," p. 16.
31. *NRA*, section 3002.
32. McGlothlin, personal communication, July 7, 1972.
33. J. C. Kramer, R. A. Bass and J. E. Berecochea, "Civil Commitment for Addicts: The California Program," *American Journal of Psychiatry*, 125(6) (December 1968): 129.
34. Kramer, "The State Versus the Addict," p. 13.
35. V. Chiapolli (Detoxification Program Director, Marin Open House, San Raphael, California), personal communication to the Commission, July 11, 1972.
36. *NRA*, section 3150.
37. *NRA*, section 3151.
38. California, Department of Corrections, *Statistical Review* (as of December 31, 1971), mimeographed. See also McGlothlin, personal communication, July 7, 1972.
39. R. W. Wood, "Major Federal and State Narcotics Programs and Legislation," *Crime and Delinquency*, 16 (1970): 50.
40. T. Duster, *The Legislation of Morality: Law, Drugs and Moral Judgment* (New York: Free Press, 1970), p. 151.
41. B. Wilson, Jr. (Parole and Community Services Division, California Civil Addict Program), personal communication to the Commission, September 4, 1972.
42. Wood, personal communication, September 5, 1972.
43. J. C. Kramer and G. E. Sing, "Short Stay-Arbitrary Release vs. Longer Stay-Routine Release in a Civil Addict Program," *The International Journal of the Addictions*, 4(2) (June 1969): 196-197.
44. Wilson, personal communication, September 4, 1972.
45. Wood, personal communication, September 5, 1972.
46. Wood, "Major Narcotics Programs and Legislation," pp. 21-22.
47. R. W. Wood, "The Civil Narcotics Program: A Five Year Progress Report," mimeographed (Corona, California: California Rehabilitation Center, March 8, 1967), p. 14.
48. Wood, personal communication, September 5, 1972.
49. Wilson, personal communication, September 4, 1972.
50. Wood, personal communication, September 5, 1972.
51. J. E. Berecochea and G. E. Sing, Jr., "The Effectiveness of a Halfway House for Civilly Committed Narcotic Addicts," *The International Journal of the Addictions*, 7(1) (1972): 131. See also McGlothlin, personal communication, July 7, 1972.

52. *NRA*, section 3154.
53. McGlothlin, personal communication, July 7, 1972.
54. *Ibid.*
55. Wilson, personal communication, September 4, 1972.
56. *NRA*, section 3200.
57. *NRA*, section 3151.
58. Kramer et al., "Civil Commitment for Addicts," p. 130.
59. *Ibid.*, p. 129.
60. McGlothlin, personal communication, July 7, 1972.
61. Katz, "A Critical Look," p. 548.
62. Kramer et al., "Civil Commitment for Addicts," p. 133.
63. G. E. Sing, "A One Year Followup of All Residents Released from the California Rehabilitation Center to Outpatient Status in 1970," mimeographed (Corona, California: Civil Addict Program Research Unit, October 1971), p. 10.
64. California, Department of Corrections, *Summary Statistics: 1968*, as of December 31, 1968.
65. Kramer, "The State Versus the Addict," p. 12.
66. Kramer et al., "Civil Commitment for Addicts," p. 132.
67. W. H. McGlothlin, U. C. Tabbush, C. D. Chambers and K. Jamison, "Alternative Approaches to Opiate Addiction Control: Costs, Benefits and Potential," paper prepared for the U.S. Department of Justice, Bureau of Narcotics and Dangerous Drugs, February 1972, mimeographed, p. 45.
68. Kramer et al., "Civil Commitment for Addicts," pp. 131-132. *See also* J. C. Kramer and R. A. Bass, "Institutionalization Patterns among Civilly Committed Addicts," *Journal of the American Medical Association*, 208(12) (June 23, 1969): 2301.
69. Kramer, "The State Versus the Addict," p. 12.
70. Kramer and Bass, "Institutionalization Patterns," p. 2298.
71. McGlothlin et al., "Alternative Approaches to Control," p. 46, citing G. E. Sing, "January-June 1970 Releases: A One Year Followup, Civil Narcotic Addicts Released to Outpatient Status," California Rehabilitation Center, Corona, California, November 1971.
72. California, Department of Corrections, *Highlights of the Civil Addict Program*, mimeographed (one page), CRC internal Research Note, March 22, 1972.
73. *Ibid.* *See also* the following statement by G. E. Sing in a CRC internal Research Note of April 1972: "... increases in the percentage of outpatients in active status one year following release ... appears to reflect further changes in both the policies of the Narcotic Addict Outpatient Program and of the Narcotic Addict Evaluation Authority. The new policies involve increased efforts to maintain and program Civil narcotic addicts in the community," (One Year Follow-up of All Residents Released from the California Rehabilitation Center to Outpatient Status in 1970," p. 1).
74. California, Department of Corrections, *Statistical Review*, as of December 31, 1971.
75. *NRA*, section 3200.

76. *NRA*, section 3201.
77. *Ibid.*
78. Gardiner, personal communication, July 14, 1972.
79. Canada, Commission of Inquiry Into the Non-Medical Use of Drugs, *Treatment: A Report of the Commission of Inquiry Into the Non-Medical Use of Drugs* (Ottawa: Information Canada, 1972), p. 16.
80. Kramer, "The State Versus the Addict," p. 17.
81. Wilson, personal communication, September 4, 1972.
82. California, Department of Corrections, *Highlights*.
83. *Ibid.*
84. Wood, "A Five Year Progress Report," p. 2.
85. McGlothlin et al., "Alternative Approaches to Control," p. 47.
86. Wood, "A Five Year Progress Report," p. 4.
87. McGlothlin et al., "Alternative Approaches to Control," p. 46.
88. McGlothlin et al., "Alternative Approaches to Control," p. 46.
89. *Ibid.*

Innovative Services

INTRODUCTION: THREE YEARS OF EVOLUTION

In 1970, in its *Interim Report*, the Commission used the term "innovative services" to designate social and medical agencies (for example, clinics, drop-in centres, communes and therapeutic communities) which had appeared primarily in response to drug-related problems, and which tended to reflect the aspirations and values of young people involved, not only in drug use, but also in various forms of social protest. The appearance of these services was often a result of the inability or unwillingness of established agencies to provide medical, psychological, and other kinds of assistance to drug users, and the desire of young people to be treated without being judged and without fear of being reported to their parents, the police or other authorities.

Innovative services in 1970 provided an outlet for the expression of non-traditional values and, for many of those embracing new life styles, they were becoming both a focal point and a means of projecting their values. Some of these services not only dealt with acute drug-related crises but also began drug education programs. The orientation of these programs tended to differ radically from those sponsored by the police, the schools and other established institutions.

Since the publication of the *Interim Report*, the Commission has endeavoured to follow the development of the innovative services. This was accomplished through the distribution of questionnaires, field trips (in more than a dozen Canadian cities) and personal contact with the staff members of these agencies.

In the last three years, the innovative services have undergone a number of changes in structure, orientation, quality, number and type. Some of these changes are clearly visible, others less so, and still others are quite intangible.

CHANGES RELATING TO GOVERNMENT POLICY

The most visible changes in the innovative services have occurred as a result of the response of various government departments on both the

provincial and federal levels. Policies have been developed and structures have been established to coordinate, subsidize and evaluate innovative services, to prepare directories of such services and to encourage research into the non-medical use of drugs.

Since the publication of the Commission's *Interim Report*, the Federal Government has provided support for innovative services in a number of ways. On January 27, 1971, the Minister of National Health and Welfare stated that his Department would support a greater number of innovative services designed to meet drug-related social problems, that grants would be made for experimental programs undertaken by new or existing organizations, and that other forms of help or short-term financial assistance would be available to the originators of these services.¹ The Commission had recommended in its *Interim Report* that innovative services receive "the whole-hearted moral support and official recognition of the Federal Government". The Commission had also suggested financial support for these services, although without specifying the terms. In addition, the Commission stressed that it was essential for the provinces and municipalities to take an active interest in these services.

Federal Government grants have in fact been steadily increasing since 1970. The sum of \$400,000 was allocated in that year to demonstration projects and experimental programs by the Department of National Health and Welfare. In 1972-73, the budget of the Non-Medical Use of Drugs Directorate (NMUD) was an estimated \$8,368,000, a major proportion of which (\$3,750,000) was slated to go directly to the financing of innovative services. (See Table 1 on page 187.) A portion of the money allotted to drug-related research and educational programs was also available to innovative services, depending on the extent of their involvement in research and education.

Late in 1971, NMUD published a list (necessarily and admittedly incomplete) of some nine hundred agencies and services dealing with drug-related problems.² Many of the services listed were youth-oriented "street agencies". NMUD provides year-round financing for some 75 of these groups and services in addition to supporting approximately 150 others through grants for summer staffing. Other projects receive financial assistance through the Local Initiatives Program, and a few through Opportunities for Youth.

NMUD interprets its mandate fairly broadly and does not feel bound to assist only those services directly and exclusively concerned with drug users. Some experimental programs that receive grants from this and other federal agencies may be only peripherally or historically related to drug problems as such. Some of the assisted services have an openly preventive orientation, providing health and nutritional counselling as well as education in the health field in general. On the other hand, a number of services which had previously focussed specifically on drug-related issues have evolved into agencies of much wider scope with a very broad range of

activities. Among the latter are the "street clinics" that have moved into the controversial fields of community health and medical treatment especially related to the problems of adolescents.

EVOLUTIONARY CHANGES

The purpose of most of the earliest innovative services was simple and clear-cut: to fill the void caused by the lack of adequate medical facilities for drug users suffering acute health problems. The established agencies were inexperienced in handling these special problems, and many young people, especially those whose values and life style departed radically from conventional standards, were reluctant to appeal to them for help. At that time, the very appearance and existence of innovative services was symptomatic of an already serious conflict between certain categories of young people and the adults and institutions responsible for their health and education.

Since 1970, there has been a significant change in attitudes among some staff members of health and educational institutions. Many of them have criticized the relative incompetence of the established health services in their handling of non-medical drug use problems, and urged the addition of young people who are fully conversant with the drug scene to established agency staffs (for example, certain hospital outpatient clinics). Such measures are meant to 'bridge the generation gap' by facilitating the experiences of young people in these institutions, as well as sensitizing the adult personnel to their special needs and problems.

Young people too have acquired a new outlook on the non-medical drug use phenomenon. The issue no longer generates the same intense feelings that it did in 1968 and 1969. While excessive or chronic use of drugs may still be symptomatic of social and psychological alienation, it seems that most young people who use drugs occasionally and in moderation do not do so to express rejection of adult society or the bureaucratic "system". Groups of individuals who have broken away from traditional life styles are increasingly expressing their dissidence in a clear and constructive manner, through provision of and participation in services.

These services cover a broad range of activities. At one end of the scale are crisis centres and street clinics that are directly in touch with drug users and their problems and provide free medical assistance without conditions; at the other end are drop-in and community centres, communes and other collectives, some using semi-therapeutic methods of treatment, some forming therapeutic communities, and others simply offering alternate life styles. Some came into being for the purpose of dealing with drug-related problems but have evolved into places of refuge where young people can find an atmosphere and life style not to be found elsewhere; others have retained their function of providing medical services for drug users and for a variety

of other medical problems such as venereal disease. Still others, however, were created with the intention of offering and encouraging alternate life styles rather than as specific response to the non-medical drug use phenomenon *per se*.

SOME TYPES OF INNOVATIVE SERVICES

CRISIS CENTRES

Although most of these services were originally created to deal with drug-related emergencies, their functions have continued to diversify. Over the past two years, there has been a continuous growth of "community switchboards" and "hot lines", which are available on a 24-hour per day basis. Today their clientele are often people of all ages who are seeking information and help for a wide variety of critical problems, ranging from social welfare to housing. Similarly, youth clinics are increasingly oriented to referral and counselling rather than treatment of acute drug crises.

The change in social attitudes that we have observed in established agencies has had a certain effect on the function of both crisis centres and youth clinics. Once hospitals and conventional medical clinics had begun to show a more tolerant attitude toward drug use, venereal disease and other adolescent problems, the referral services and crisis lines began to refer cases to them. This meant that crisis centre staffs were relieved of many serious and acute medical problems.

It should also be observed that recently there has been a marked decrease in psychedelic drug emergencies brought to the attention of crisis centre workers. The decrease does not necessarily mean that fewer people are using psychedelic drugs. It seems rather that young users have become more familiar with drug effects than they were three years ago, and are less likely to experience crises which cannot be handled by their friends. In addition, while there are considerably fewer calls related to drug use in general, the calls received now more often involve prescription drugs and multiple drug use, including interactions between alcohol and other drugs.

HOSPITAL YOUTH WORKERS

In its *Interim Report*, the Commission recommended that representatives of the medical profession (including psychiatrists, psychologists and other counselling professions) establish a system of communication and cooperation with the innovative services.

In February 1971, the Canadian Hospital Association passed a number of resolutions to this effect at a conference held in Montreal under the auspices of the Department of National Health and Welfare. This conference was attended by many innovative service representatives. The two most

explicit of these recommendations were one suggesting an exchange of personnel between hospitals and detached free clinics on a rotation basis and another proposing the addition of street workers to hospital treatment teams.³

The Toronto General Hospital seems to have developed the most comprehensive operational model for the inclusion of young people in its services.⁴ Young people who are thoroughly familiar with the non-medical drug use scene have been working there since March 1971. These young adjuncts to the normal hospital staff are generally members of the youth culture and understand its customs and mannerisms. They work side by side with professionals in the hospital's emergency department, where they are available 18 hours a day. They make the initial contact with young people brought to the hospital, try to establish a positive rapport between them and the medical personnel, and stay with the young patients throughout all the phases of their hospital treatment. These youth culture representatives are also directly involved in the work of the hospital's social service department. When a young patient is about to be discharged, a youth worker will try to find him food, clothing and shelter if necessary. The youth workers also keep the hospital personnel informed of community services available to meet the unique needs of transients and other young people.

These hospital youth workers, then, serve as interpreters for young patients who have special needs and may feel alienated in the hospital setting. In addition, youth representatives may conduct lectures and seminars, providing in-service training for doctors, nurses and other medical personnel who wish to acquire a better understanding of young people.

STREET CLINICS⁵

Since 1968-69, some crisis centres have evolved into multi-purpose clinics staffed night and day by young non-professionals, with the help of nurses and doctors. Many of these donate their time and services on a volunteer basis. Over the last two years, other "free clinics" have also been set up, some with financial support from the provinces in the form of health service demonstration grants, and some with help from Federal Government employment programs. A background paper for a brief presented to the Commission (prepared by the Council on Community Health Care, a subcommittee of the Canadian Medical Association) observes that street clinics in large cities are now seeing fewer young people with drug problems *per se* and more who are suffering from other medical problems.⁶

Street clinics and free clinics have left behind the purely emergency orientation of their early days, and now also engage in preventive health counselling, particularly in nutrition and hygiene, including dental hygiene. In addition, they try to disseminate reliable information on public health matters. Often they are the first direct contact points in the detection and treatment of venereal and other infectious diseases. They also give first aid. Most have developed educational and "outreach" programs to serve their

communities, dispensing birth control information, assisting school authorities with drug education, and holding well-baby and early childhood clinics.

Street clinics and free clinics are playing an increasing role in practical training for medical personnel.⁷ In a number of instances, they have been responsible for changing the attitudes of certain Canadian health service professionals. They have often shown the way to a less moralistic approach toward young people, their use of drugs, their life styles and their sexual behaviour.

Some observers have predicted that in the future medicine will become more oriented to the style of "participatory medicine", involving free and easily accessible medical care dispensed by community-oriented health agencies. Thus, these street clinics, originally developed for dealing with problems related to the non-medical use of drugs, may be pointing the way for the development of health care in the future.

STREET COMMUNITY CENTRES

With the traditional medical agencies becoming increasingly responsive to the needs of young people with drug-related problems, and with street clinics and free clinics handling other aspects of health care for young people, many innovative services have moved away from the health orientation which was their original *raison d'être* and have taken up much broader activities. A number have turned to the creation of "alternatives" for the young and less young who feel alienated from the society they live in. Often the basic difference between these alternatives and established social institutions is not so much one of program content as of the degree of client participation in the organization and administration of these facilities. Some of these broader-based innovative services were begun in order to offer alternatives to chronic drug use. Others were created to provide alternatives to established institutions, conventional schools, for example, which have lost relevance in the eyes of some young people. Thus "free schools", arts and crafts workshops, ecology activist organizations, food cooperatives and so forth have appeared in great variety.

Street community centres may serve as meeting places for theatre workshops or housing cooperative organizations, for yoga classes or music practice; they may provide space for "free stores" where clothing and other objects are exchanged, for political meetings, and many other activities. Some have developed "free universities" or are associated with "free school" experiments addressed to young people unsuited to or unwilling to participate in conventional school life. Today, very few deal in any concrete way with drug-related problems or drug crises.

These street community centres differ from therapeutic life style projects (described in the next section) in that they do not have the degree of formal organization necessitated by the latter's treatment focus.

THERAPEUTIC COMMUNES⁸

In its *Treatment Report*, the Commission described a number of services which it called "therapeutic communities"; these differ somewhat from the services to be discussed in this section. Therapeutic communes are generally youth-managed projects with treatment methods and philosophies similar to those of therapeutic communities like X-Kalay and Day Top, but with less intensive and rigorous application. The founders of these therapeutic communes do not put much store in "treatment" in the conventional sense, and do not make extensive use of high-powered encounter and confrontation group methods. Some consider the classic therapeutic community tactics to be somewhat manipulative and authoritarian. Therapeutic commune staffs will concede that this mode of treatment may be helpful to some, but insist that such intensive treatment is not needed by all drug users, even chronic users.

Therapeutic communes are for the most part residential, though some function primarily as "outreach workshops" that provide activities and group therapy sessions without live-in facilities. Many function as halfway houses to which the courts and social agencies may refer young delinquents with drug histories; they also provide a re-entry portal for young people who have undergone, willingly or unwillingly, more intensive treatment modalities. The personnel of these communal services are largely young non-professionals, some former drug users themselves.

A service of this type provides a communal living experience and a supportive peer group, an alternative milieu to the drug-oriented one in which the chronic drug user has been involved. The avowed intention is to break the cycle of dependency and compulsion, and to remove the drug user from the circle of friends who may encourage relapse.

These services use some of the techniques of group therapy current in a number of therapeutic communities, but they do so in a rather loose and paraprofessional way. They also utilize the assistance of professionals, especially psychiatrists. Their success depends to a great extent on the quality of client relations (with a supportive peer group composed very largely of young people) and their ability to follow up former residents.

The length of residence, where residence is involved, varies from one group to another, and even within a group. Oolagen House, for example, gives residence contracts for 2 to 12 months, but will occasionally allow a person to stay longer.

There are now a number of "rural communes",⁹ life style projects intended for chronic speed and multiple drug users who need (or are thought to need) to be removed from surroundings where drugs are easily available. The rural commune provides a setting for abstinence, rest, and personal re-assessment. However, it seems that these services are now attracting young people with serious emotional and family problems quite apart from,

though often including, excessive drug use. Although professional social workers and psychiatrists are involved with some of them, these communal projects rely mostly on healthy surroundings, group living, cooperative work, a period of freedom from the pressures of city living and an alternative to the life style of obtaining and using drugs.

The criticism often levelled at rural foster homes for city children applies to rural communes too, inasmuch as they count heavily on the intrinsic therapeutic value of life on the farm. However, the mere fact of getting away from the city and living in the country is no cure in itself, although it may be of value to some. Few rural communes are in fact self-sufficient, as their philosophy would have them; most depend on city-based projects for funds. Moreover, it would be quite unrealistic to try to convert speed freaks into permanent farmers. The rural communes recognize this, or most do, and have associated with halfway houses or urban residences where the cure begun in the country can be completed, and re-entry into the urban environment facilitated.

Therapeutic communes, both urban and rural, seem to follow an educational model rather than a medical or moral one. Their basic assumption seems to be that with the acquisition of certain survival skills, the experience of group living with its day-to-day give and take, and with increasing group awareness, the obsessive need to use drugs will tend to disappear. In these groups, the drug need is regarded as a symptom of personal maladjustment, stemming from feelings of social alienation. It is believed that with the activity of communal living and the necessities of feeding, clothing and housing the group, the need for drugs ceases to be the predominant preoccupation. Urban and rural therapeutic communes in general, rather than being anti-drug as such, try to instil in their members a desire to be freed of the drug obsession, which they consider to be a hindrance to the achievement of satisfaction in life.

In this the communes do not differ significantly from the therapeutic communities, whose basic principle is group responsibility. In this system, rewards are in the form of self-fulfilling contribution to the life of the group as a whole, and the contribution of each participant will increase along with his capacity to assume responsibility within the group.

PROBLEMS FACED BY INNOVATIVE SERVICES

INHERENT LIMITATIONS

While the Commission has explicitly demonstrated its support for the innovative services, and has recommended that they receive assistance from the various governments, we must point out the limitations of this form of social service and suggest that here, as with established agencies, there is room for constructive criticism.

The first caveat arises from the fact that these agencies, like any other, can fall into rigid routines and lose contact with those they intend to serve because of their preoccupation with their own vested interests. While it is true that most innovative services have remained flexible and have kept their personal character, and while generally speaking their contribution has been extremely important, there are certainly some, in no greater or lesser proportion than among other social institutions, which have in fact fallen prey to rigidity or corruption, thus destroying their communication with those they had originally set out to serve. No less than for other, more traditional service groups, it is imperative that the innovative services constantly re-examine the relevance of the services they offer and the effectiveness of their adaptation to the needs of their clientele.

They must also resist the tendency to consider that they and they alone are capable of meeting the needs of young people. They have no monopoly in this field, and one of their most important roles is, and will certainly continue to be, the interpretation of the needs of a segment of the Canadian population to the more traditional institutions. Ideally, the reverse would be desirable as well.

All experts are agreed upon the fact (which is no novelty to most of the competent young people now in charge of the innovative services) that our drug problems are bred by a combination of widely varying factors, many of which originate in the nature of our social institutions and the structure of Canadian society. This generative relationship has been perceived by the innovative services; they consider most of the problems coming to their attention, whether involving drug use or not, to be normal problems experienced by the great majority of young people struggling to establish and maintain an identity in the face of the constant social and psychological stresses characteristic of our urban environment. When young people discuss the causes of their alienation with innovative service personnel, they themselves identify such things as high unemployment (especially among young people), dissatisfaction with schools, communication breakdowns in families, and radical shifts in values and attitudes. This indicates that the innovative services are part of a much larger scene, and must take into account the entire complex of interrelated social forces. Street clinics, therapeutic communes and other non-conventional services cannot alone counterbalance the enormous, ever-present forces that create stress and alienation. In exercising their awareness of the factors underlying drug use, innovative staffs and their clientele must realize that they occupy a very small place in the total social mosaic, and that their efforts alone are not enough to offset the sources of maladjustment and alienation. They must also recognize that they can contribute to, as well as ameliorate, the alienation of their clients.

There are signs, however, that this realization is in fact coming to pass. While the innovative services express a lack of faith in certain treatment modalities (the methods of classic therapeutic communities, for example), we have observed that some of them, and indeed an increasing num-

ber, do turn for help to established medical services. It is not out of the ordinary for innovative services to send their clients to psychiatrists or to social service and mental health clinics. They appear to be recognizing the necessity of an interrelationship with the established services, and to be more conscious of the importance of follow-up for their clients. In short, the innovative services seem to be recognizing increasingly that their role is to meet particular needs, but that they are not alone in the community and that their clients live in a social context whose facilities they are entitled to use.

INNOVATIVE SERVICES AS SOCIAL CRITICS

Innovative services are not always regarded kindly by the health and welfare professionals with whom they should be working, because they have assumed the role of social critics with regard to established services. They have often protested, sometimes with good reason, that the professionals concern themselves only with individual functioning and look no further than at the immediate causes of personal maladjustment. The radicals among the innovators have accused the professionals of being social manipulators who force adaptation to the social system, rather than being agents of creativity, change, self-determination and personal fulfillment. These criticisms have frequently been lacking in tact, and established services, particularly child welfare agencies, have sometimes responded with considerable animosity. Thus, the established agencies have themselves had occasion to feel alienated in their search for innovative means of dealing with youth problems.

It must be admitted, however, that many of the innovative services would not have come into being had welfare agencies and social service bureaux not become ossified and unable to respond satisfactorily to the needs of contemporary Canadian youth. The established agencies' failure to adapt and the negative image entertained by young people with respect to such institutions are certainly factors behind such criticisms. However, there have been instances, or there were two or three years ago, where innovative services have not only been harshly critical but have flatly refused to cooperate with the established agencies. In such cases, the innovative services have carried on in isolation, to the detriment of their clientele. Significantly enough, subgroups within certain innovative services have been seen to break away and set up community services working in genuine interrelationship with established services.

NON-MEDICAL DRUG USE IN INNOVATIVE SERVICES

Many centres for young people with alienation or drug use problems have strict rules regarding the use of drugs on the premises. For many, the rule is total abstinence, and the use and distribution of any psychotropic

substance is forbidden, although in some cases little effort is made to enforce these regulations. Such rules are of course no absolute assurance that an innovative service will never contribute to the distribution or use of drugs. Other innovative services are much more lenient in this respect, have no rules against use or trafficking and do not refuse their services to clients on those grounds.

The Canadian people and their governing bodies must decide whether financial and moral support should be given to services which may, directly or indirectly, in some cases and for a certain proportion of their clientele, encourage the illegal use of psychotropic drugs. However, two facts in particular should be considered: first, that centres maintained by these services are not the only places where young people gather and where drug transactions and use could take place; second, that in many cases the innovative services have indeed tried to evolve a philosophy that at least does not encourage drug use, and many of them frankly discourage it. Rather than attacking the drug problem directly by imposing total abstinence, most services have tended to treat drug use as a symptomatic and relatively unimportant activity, one which is unfulfilling both socially and personally, and for which they try to provide alternatives by emphasizing other activities of a creative and group nature.

Another facet of the question of drugs and their use in the innovative services is the presence of young ex-users on staff. In Canada and the United States, many of the classic therapeutic communities are staffed with and run by former heroin users. However, the innovative services sometimes employ people who are current users of illicit drugs (cannabis, for example) as well as those who have been seriously involved in chronic drug use in the past. In the innovative service context, experience with drug use is considered to be a useful asset, increasing the staff member's understanding of his clients' problems and facilitating recognition of the various types and phases of intoxication. However, there appears to be a tendency on the part of innovative services to evaluate a potential staff member's competence on the basis of his ability to handle specific responsibilities rather than on his drug history.

Canadians would probably find it reassuring to see a former heroin addict hired for the staff of an innovative service, feeling that he would be likely to promote abstinence in the clientele. If a staff member is a current user, however, a great many parents, teachers and others interested in the service would justifiably have reservations, fearing that he might condone or even encourage the use of drugs by young people. While innovative services are not expected to be monasteries or places of penitence, backers and staff members should see that norms compatible with the stated and implicit goals of the service and compatible with existing laws are laid forth and respected. There are cases where this means complete abstinence for both staff and clientele.

DRUG INFORMATION ROLE FOR INNOVATIVE SERVICES

There is no doubt that the innovative services have played a useful role in the dissemination of information about drugs. This was particularly true in the period when there were few other sources, since many doctors, educators and others from whom such information is usually sought knew little about psychotropic drugs, the youth culture, or the underlying factors of drug use. Today, however, there are many doctors, psychiatrists, nurses, educators and parents who are reliably knowledgeable about these things, and who have a sympathetic understanding of the special problems of young people. They can now also be counted on for information concerning drugs and the youth culture.

The Commission is of the opinion that, while the innovative services should continue to play an informational and educational role regarding psychotropic drugs, it should not be their exclusive responsibility, as some of them seem to think it should, and they should cooperate with others who have special expertise and insight. The community is perfectly within its rights in requiring that innovative services, like other agencies which dispense such information, must be accurate and that their knowledge of drugs, drug effects and the factors underlying their use be as complete as possible.

SOME LEGAL QUESTIONS OF CONCERN TO INNOVATIVE SERVICES

Can the innovative services give shelter to juveniles without parental permission? Can they encourage juveniles with health problems to submit to medical treatment without formal authorization from their parents or guardians?

The *Criminal Code* provides severe penalties for those who seek to deprive parents or guardians of the possession of an unmarried girl under the age of 16 or a child of either sex under the age of 14.¹⁰ There would not appear to be any liability under these provisions for members of an innovative service who are merely providing shelter or other services to a runaway without any attempt to interfere with the right of parents or guardians to the possession of the minor. Under these provisions there is no duty to report the whereabouts of a runaway child, but a refusal to comply with a parent's request for information might give rise to a question concerning intent.

Under the federal *Juvenile Delinquents Act*¹¹ it is an offence to induce or attempt to induce a juvenile to leave a house of detention, industrial school, foster home or other establishment in which he has been placed under the terms of the Act. When a juvenile has escaped from one of these establishments, it is illegal to offer him shelter without notifying the juvenile court or the police. Innovative service staff must therefore notify the appropriate authorities when they have on the premises a juvenile known to have escaped from a place of detention, and if they fail to do so they could be

found guilty of an offence. Under some provincial statutes, too, it is an offence to induce a juvenile to leave a place of detention, and knowingly to give him shelter when he has run away from such custody.

Although there is a dearth of Canadian judicial authority¹² on the point, it is generally assumed that parental consent is required for the medical treatment of a minor in other than emergency situations. This assumption is reflected in provincial child welfare and protection legislation which provides for judicial intervention in cases in which parents refuse to consent to necessary medical treatment for their children.

Such procedures are not always easy to apply in practice. Furthermore, obtaining parental consent, whether of necessity or as a precaution, can pose real problems because young people often do not want their parents to know of their difficulties.

Clarification of this situation in provincial legislation would be highly desirable. *The Public Health Protection Act*¹³ in the Province of Quebec now allows for the treatment of minors of 14 or over without parental consent; parents must be notified, however, if the minor is sheltered for more than 12 hours or the case is one of extended treatment. An effort at overhaul and updating of legal guidelines is badly needed throughout the rest of Canada too, for certain long-standing assumptions concerning parental control and consent may now be thoroughly outdated and inadequate in view of the physical mobility of today's adolescents.

STAFF BURN-OUT

The innovative services have been plagued by the problem of staff "burn-out", the loss of staff due to physical and nervous exhaustion. In some services this has been alleviated of late, but in others it continues. It results in a high rate of staff turnover and impedes effectiveness to some extent because of a loss of continuity in traditions, rules and standards evolved through experience. It is apparent that there is still room for more careful staff selection, as well as some system of training, however informal, to make staff members more resilient to the abrasive conditions they encounter. Burn-out is certainly also partly attributable to the unrealistic goals that services sometimes set for themselves, particularly when the staff is untrained and inexperienced. The psychological characteristics of people attracted to innovative service work may also contribute to the problem. Generally the young adults who undertake this work are particularly effective because they have a great degree of empathy for the young people they are called on to serve, and yet are personally and socially mature enough to help others come to grips with their problems. The ideal staff candidate must therefore be able not only to resolve the alienation-bred conflicts he shares with other young people, but also arrive at a compromise between youthful aspirations and certain social exigencies.

Traditional health and welfare agencies and social work schools have recently begun to be much more open to establishing contacts and closer liaison with the innovative services, exchanging services with them and requesting them to assist in the training of their own professionals.¹⁴ This development may be one solution to the problem of staff burn-out in the innovative services. This rapprochement moreover, is seen by innovative staff as recognition of their own value and usefulness, and an indication of growing interest in what they are doing. It also gives them the opportunity to turn for guidance to people involved in more systematic approaches to understanding human behaviour.

A second solution for burn-out would undoubtedly be hiring more and more competent personnel. The unorthodox structure and operation of services, the direct and continuous contact with young people, and the stresses of day-and-night service on a limited staff would seem to make burn-out inevitable in some cases. NMUD demonstration grants have recently made it possible for some innovative services to hire more staff and introduce shift work to reduce the strain.

Generally speaking, staff burn-out and high turnover are less serious now than two years ago. This is undoubtedly due in part to greater experience in managing the unorthodox innovative service methods, but also to the fact that, with more adequate financing, many services have staffs that are numerically more adequate for the job to be done.

ORGANIZATIONAL STRUCTURE

It is typical of the innovative services that day-to-day decisions affecting conditions for the clientele are made by the staff at informal meetings. Most of the services, however, also have boards of directors or advisory boards which, in principle, make the larger organizational decisions. The short history of innovative services is fraught with conflicts arising from differences between board members or advisors on the one hand and staff members in direct contact with day-to-day realities on the other. Many young staff members have no doubt been 'turned off' by the necessity of complying with directives or of taking counsel from advisors who seem, and often are in fact, far removed from the realities of the service. It is clear that over the last two or three years a considerable number of young people involved in the organization and operations of the services have acquired a positive sense of social responsibility and also by now a good deal of experience in the management of social services. However, it is not easy to persuade innovative staff members that conflicts between the generations will hardly diminish if they themselves cannot be articulate in explaining the needs of young people to adults who are sufficiently interested in them to serve voluntarily on innovative service boards.

If innovative services are to avoid the problems of impersonality inherent in "top-down" planning and policy-making without consultation, their

size and scope must be kept within reasonable proportions. There is no doubt that unwieldy size breeds formality and impersonality, and necessitates a complex bureaucratic structure.

DETECTION AND CONTROL OF YOUTHFUL HEROIN USE

Judging from reports received by the Commission from its observers in the various provinces over the past year, there has been a marked increase in heroin use among young people. Intervention during the 'honeymoon' (or 'chipping') period of experimentation is of course crucial in heading off dependence. Most well established treatment programs have no direct means of contacting youthful heroin users who are not yet dependent on the drug but are in danger of becoming so. Nor do they have any indirect means of reaching them. The innovative services, particularly the youth-run services with outreach programs, could play an important role with youthful heroin users of this kind. The staffs of these services, by developing a good rapport with these young people and maintaining continuous friendly contact, may be able to prevent them from assuming a daily consumption pattern, even if they cannot persuade them to give up the drug entirely. If they are alert and keep close watch over young people who have either tried heroin or are exposed to its use, they could prevent the latter from using and encourage abstinence (or detoxification, if necessary) among novice users.

FUNDING: POLICY AND PROGRAMS

As mentioned earlier, federal funding has been available to the innovative services from three sources. Most important are grants for experimental and demonstration projects from the Non-Medical Drug Use Directorate, but there are also sums of money provided through the Local Initiatives and Opportunities for Youth programs to cover staff salaries for services which are generally of an innovative nature. The application of funds from these sources tends to overlap to some extent. We note five special problems related to the funding of innovative services.

PROVINCIAL AND MUNICIPAL SUPPORT

In granting funds through NMUD for the launching of experimental or demonstration projects, the Federal Government's intention has been to give these projects an opportunity to prove their usefulness. It is hoped, once their usefulness to their communities has been demonstrated, that their support would be taken over by the provincial and local governments whose jurisdictions benefit by these programs and the efforts of their staffs.

Some projects do not succeed in demonstrating sufficient usefulness within the time allotted (three years maximum). This is either because pro-

vincial and municipal criteria for the fixing of priorities differ greatly from those of the innovative service founders, or because the usefulness of a service is simply not apparent. Some services, moreover, have failed to look to the future; they have realized too late that after a year or two their role might well be taken over by the more traditional services (hospital outpatient clinics, community centres or local health centres) and have not made efforts to establish an interpretative and coordinating relationship with those services.

If the innovative services have difficulty in finding other sources of support when their federal grants terminate, the Federal Government is at least partially at fault. There has been no joint planning or anticipatory agreement with the provinces and municipalities, and no effective dialogue on health and welfare which might lead the provinces to realize the importance of gradually taking over the support of services which have proven their usefulness. This being so, it is understandable that provincial health and welfare departments may be disinclined to take over sponsorship of services that they did not bring into being and which may not fit into their system of priorities.

A number of arrangements could be worked out to ease the transition from federal to other funding. While we recognize that the Federal Government has put a time limit on its support in order to avoid making direct operating grants to services properly falling within the jurisdictions of provincial and municipal health and welfare departments, nonetheless it could have conceived other ways of withdrawing the financial support of these services. Instead of simply cutting off its support after two or three years, NMUD might have devised a predetermined tapering off, contributing, say, 75% of operating costs for the second year, 60% for the third, 30% for the fourth. Such a solution would give the services time to find alternate funding from the provinces, municipalities or private sources. It might encourage them, too, to sell their usefulness and effectiveness to a number of potential backers, including some in their own local communities.

GRANTS FOR STAFFING

As we have observed, both the Opportunities for Youth summer programs and the Local Initiatives programs have provided funding for many projects, particularly for staff salaries. In the interests of establishing a fully consistent body of policy regarding non-medical drug use and its prevention, it appears to the Commission that all federal grants to innovative services might best be handled, directly or indirectly, through NMUD. Despite its own early organizational difficulties, the Directorate is now in a position to operate its programs effectively and to keep pace with the evolution of the social movement that has sprung from drug abuse problems and the solutions that young people and the society as a whole have tried to bring to those problems.

Without discarding the possibility of coordination between NMUD demonstration projects and Local Initiatives and Opportunities for Youth projects, the Commission feels that NMUD and the Department of National Health and Welfare are in the best position to develop the kind of broad-based planning that will foster a degree of social cohesion.

THE "INNOVATIVE" LABEL

NMUD has attempted to give its grants to projects considered "innovative" or original. The Commission does not intend to be negative about the practicality of this criterion, but nevertheless wishes to point out that innovation is a very relative concept. What is innovative for a town 200 miles north of Ottawa is probably not so for Toronto, Montreal or Vancouver. Some projects have in fact made a step in the right direction and have filled a need in communities where services are few or lacking in variety, and yet have failed or found it difficult to prove sufficient innovativeness to obtain grants. No doubt there has been reason to question the originality of certain small-town projects which are no more than copies of well established services in large cities. However, it seems reasonable for the Directorate's regional and local representatives to rate such a project in relation to whether or not the community needs its service, since it may indeed be new and original in that particular context.

PROGRAM DESIGN IN RELATION TO DRUG USE PROBLEMS

Of late, NMUD has been less insistent that innovative services be designed specifically to deal with drug-related problems. To qualify for grants, experimental and demonstration projects no longer need to show that their purpose is first and above all to serve a clientele already suffering health problems arising directly from drug abuse.

The Commission believes that this change of emphasis was appropriate. Indeed, as we have already observed, innovative service staffs are becoming increasingly aware that if their projects are to be effective they must take into account much broader-based factors than the drug phenomenon *per se*. In other words, they must look to the social causes of youthful alienation and discontent and endeavour to offer meaningful and creative activities and alternatives to young people who are unable to find them in conventional institutions. The services have been shifting their focus from drug treatment to prevention (as the Commission recommended in both its *Interim Report* and its *Treatment Report*) and have been engaging in broader community-based activities.

At the present time it is not always easy to determine whether certain services are sufficiently oriented to drug problems to be properly within NMUD's mandate. Furthermore, many services which once provided emer-

agency drug-crisis intervention have moved away from their original purpose. Nevertheless, we believe that federal sources should continue to assist those services which, through social and community development activities and a variety of other preventive measures, are in a position to play a useful role in heading off situations which may lead to problem drug use.

NMUD POLICY AND ADMINISTRATION

In the preceding paragraphs we have made reference a number of times to NMUD policy and structure. At this point we have a number of comments to make in this regard. Since its inception, the Directorate has changed directors a number of times and, no doubt being aware of the rapid development and shifts in emphasis of the innovative services, does not appear to have been able to formulate any well defined body of policy. However, it has made a number of moves that call for comment.

The first is certainly the establishment of regional offices. The appointment of regional representatives is an excellent step in the development of the Directorate's administrative structure. These representatives are in close touch with the needs of communities in their areas and are in a position to bring about a considerable degree of understanding and empathy in transmitting both local needs to the federal authorities and federal norms and directives to the local services.

However, there are hazards inherent in these regional structures. Some of the provincial offices are already very bureaucratic and, perhaps because of the large number of services they must know, assist, coordinate and sometimes manage or regroup, their contact with the 'grass roots' may be poor or even non-existent. There have been cases of erroneous information received from regional offices by observers, researchers and others concerned with the innovative services, leading to miscalculations and considerable loss of time.

Some of the regional representatives were at one time initiators of innovative services. Such choice is logical and in many cases has been highly successful, for such people often have remarkably charismatic personalities in addition to an understanding of the problems and priorities of young people. Although sometimes lacking experience, many former innovative service managers have in fact developed considerable talents as coordinators and organizers. It cannot be assumed, however, that all young people are capable of making the transition from the youth culture to effective representation of NMUD.

There are certain problems inherent in the Directorate's methods of evaluating innovative services. NMUD should realize that evaluators sent from Ottawa can hardly be expected to make a profound analysis of a service's operation, philosophy and usefulness in a total context on the basis of a whirlwind one-day visit. The local representative's judgment, on the

other hand, may be biased, either because of too close a proximity to a service or concern that service managers may go to the regional director protesting reductions in their grants or the imminent demise of their services. It must further be recognized that wise and impartial evaluation of services is often difficult for federal or regional representatives whose personal values and priorities may differ from those of the innovators.

In order to overcome these difficulties, the Directorate should require that project plans include at least an outline of evaluative research and a statement of the criteria through which, in the judgment of the project initiators themselves, the proposed service will be able to function adequately and achieve its goals. This requirement would stimulate the initiators to consider the various operational methods of evaluating their service; it would also help them to identify the signs of their success or failure. Effective evaluation of a project and the size of the grant assigned to it should be based at least partially on self-evaluation and self-imposed criteria.

EVALUATION: THE IMPORTANCE OF CLIENT PARTICIPATION

There are a number of different criteria which may provide a basis of classification of innovative services, allowing comparison between services as well as a method of evaluation of the effectiveness of their responses to the social factors underlying the non-medical use of drugs. Innovative services could be compared on the basis of their sources and modes of financing. At one extreme would be those that have never needed government funding, and at the other those that would not have come into being and would not survive without it. A second basis of classification might be the clientele. Does a service address young people only, or a mixture of age groups? People with drug problems, or people simply looking for a life style other than any offered by conventional society?

A third basis of classification might be the kind of team assembled to operate the service. Is the staff composed exclusively of professionals, or of non-professionals? Are its directors young people, adults, or a mixture of the two? Were present staff members previously clients? On the other hand, services could be classified with reference to their procedures and orientation. Is a service built around traditional medical and paramedical forms of treatment, or the methods of social psychology (sensitivity and encounter groups, etc.)? Is it mainly educational? Does it primarily offer an alternative life style?

All these dimensions might provide points of departure for defining the differences between the innovative services. However, we are convinced that the continuum providing the most important and most fundamental distinction lies in the degree of meaningful and competent participation by the 'grass-roots' elements, that is to say, by those individuals with the specific needs the service is designed to meet. At one end of the spectrum are services

in which there is total absence of such participation, and at the other, those where there is full participation in all aspects of the service, from conception and establishment to continuing day-to-day operation. The first might be qualified as exogenous or "injected from the top down", the second as endogenous or "emerging".

In our opinion, the innovative services most likely to provide a counter-balance to the phenomena of alienation, personal disaffection and isolation are those closest to the endogenous or "emerging" type, that is to say, those that grow from within as an outcome of a common awareness of problems shared with others. Although it is evident that client participation may not always be appropriate in some areas of decision-making and under certain specific circumstances, the Commission believes that it is an important aspect of innovative services and that evaluation of services should take account of their origin, structure and internal creative strength, their contact with those they serve, the participation they allow their clients in decisions affecting them, and the inclusion of clients in their managing bodies, including boards of directors.

An innovative service may both originate and evolve either from the top down or from the bottom up. Some services begun by people attempting to come to grips with their own problems have gradually been taken over by staffs who have never had and likely never will have the problems the service is intended to deal with. It is evident, too, that certain services are at present assuming an increasingly medical orientation, in Quebec particularly, hoping to attract provincial grants for community clinics. In order to qualify for these grants, drop-in and community centres that have been dealing primarily with psycho-social problems are adding medical services; some, having abandoned them, are returning to them. This is a shift in emphasis that calls for careful scrutiny to determine whether it is prompted by the injection of grants or whether it really reflects the needs of the population.

Among the factors involved in evaluating the innovative services, the Commission considers that the following five criteria deserve particular attention:

1. Was the innovative service founded to compensate for real deficiencies in conventional medical and social services? Where this is so, and where the conventional services have not corrected those deficiencies, financial support of the innovative service is entirely justified.
2. Is the innovative service structured so as to remain fully in touch with the real needs of its clientele? Has it avoided becoming unnecessarily routinized in its operations? Does it invite useful and appropriate client participation in decision-making?
3. Has the innovative service established a system of self-evaluation? Has it shown itself capable of critical self-examination in the pursuit of its goals, both latent and explicit?

4. Does the innovative service make efforts to redefine its role as hospitals and social services become better equipped to take over functions that are properly theirs?
5. Does the innovative service act as a stimulant to the conventional services, and can the public rely on it to interpret the needs of a dissident or deviant clientele? Does it cooperate with the other services in the community?

CONCLUSIONS AND RECOMMENDATIONS

In recent years the innovative services have been receiving a considerable amount of financial and moral support, certainly from the Federal Government, and in many cases from provincial and municipal governments. This support has enabled them to diversify and move into new areas of activity. It is highly probable that the innovative services will be increasingly concerned with social rather than medical activities, offering alternatives to conventional life styles through drop-in and community centres, communes and the like. The Commission, in view of its analysis of the factors underlying the non-medical use of drugs, strongly urges innovative service staffs and funding sources alike to pursue the move in this direction.

1. Notwithstanding its observations regarding the limitations of innovative services, and the fact that certain of their present functions may be taken over by traditional services (those functions which should normally fall, for example, to hospital emergency services or local health centres), **the Commission recommends that the Federal Government continue to afford direct and specific financial and moral support to the innovative services. However, the Federal Government should take concrete steps to obtain provincial participation in this support, either through cost-sharing arrangements or some other mechanism.**
2. **It is essential for the three levels of government and the various federal, provincial and municipal agencies concerned with the innovative services to cooperate fully in circulating all pertinent information, without which rational funding policies are very difficult to formulate and apply.**
3. **Where federal programs¹⁵ overlap in the area we have described as that of the innovative services, there should be more effective circulation of useful information and coordination of activities. It may in fact be preferable for NMUD to take charge of coordination in planning and funding where the innovative services are concerned, and to be responsible for keeping evaluation records up to date.**
4. **The Commission recommends that the Federal Government, in conjunction with the provinces and local community representatives, take**

steps to decentralize the mechanisms of funding and evaluation of the innovative services, and that the regional structures be given real powers of decision.

5. **It is imperative that government agencies involved in innovative service funding develop better criteria for evaluation, and that they do so in consultation with the innovative service staffs. As we have already suggested, project plans submitted for approval should necessarily include an outline of the innovators' own standards of evaluation so that the criteria established may relate accurately to the service's own pre-determined goals. Moreover, it should be possible to construct relatively simple evaluation techniques and guidelines that would not intrude on the operation of the services or undermine their originality. Wherever feasible, the innovative service staff and clientele should be involved in the evaluation process.**
6. **Demonstration projects sponsored by the Federal Government or the provincial governments should be able to provide for capital expenditures in their budgets as well as operating expenses. At present only the latter are allowed.**
7. **Under present regulations, demonstration projects are subject to annual review and cannot in any event receive federal grants for more than three years. The Commission recommends that these projects receive annual grants on a predetermined decreasing scale, the decrease to begin the second year of operation provided that other sources of support become available by that time. Such measures would only be feasible if the Federal Government were to work out some form of cost-sharing arrangement and mutually acceptable scale of priorities with authorized provincial government representatives.**
8. **Government bodies engaged in funding "free clinics" should be sensitive to the fact that these experimental services, which often are and should be critical of conventional medical institutions, have a special need to remain relatively independent in the conduct of their operations.**
9. **Hospitals should seriously consider implementing projects of the type we have described involving the incorporation of youth workers in hospital teams, in order to maximize their ability to adequately serve the whole population.**
10. **As the drug crisis intervention and drug information roles of innovative services are absorbed by larger institutions, the youth-operated services should increase their efforts to develop other forms of community, recreational, vocational, social and self-help programs.**
11. **Community colleges and schools of social work should continue and expand upon the practice of using innovative services for in-service training, where this is consistent with their projects' goals and needs. Services performed at crisis centres, street clinics and therapeutic com-**

munes and communities should be, where appropriate, accreditable at institutions that grant degrees and diplomas in these aspects of social work.

12. In evaluating the innovative services, the Federal Government, its regional representatives, provincial government representatives and local bodies should give particular attention to the quality of client participation in the operation of the services. The innovative services can and should play a role in mitigating the feelings of alienation, socio-political disaffection and powerlessness that have contributed to the non-medical use of drugs. This role they can only perform by remaining faithful to the principles and goals that brought them into being. **The five evaluative criteria outlined above should be regarded as among the most important factors to consider in the evaluation of the services.** Originality and realism of inspiration; the quality of client participation in decision-making and freedom from routinization; a capacity for self-evaluation; adaptability to the real needs of clients; a capacity for working with the community's other services: these, in our opinion, are among the most vital indicators of their worth. At the same time the personnel engaged in these services must face squarely and accept their own limitations and not strive to function beyond their capacities. They have chosen to intervene actively and purposively in the lives of others. They must show a willingness to acquire the full expertise necessary to perform their task with responsibility and competence. Care must also be taken to ensure that these services do not become centres of alienation feeding on, and at the same time reinforcing, the alienation of their clients.

NOTES

1. Canada, House of Commons Debates, January 27, 1971, 115(63): 2801.
2. Canada, Department of National Health and Welfare. *Agency Catalogue* No. 1, 1972. A second edition of this catalogue is expected in the late summer of 1973.
3. Canadian Hospital Association. Resolutions tabled at the Canadian Hospital Association Conference, Montreal, February, 1971.
4. Youth worker projects have also been established at the Jewish General Hospital and the Lakeshore General Hospital in Montreal. In addition, an independent clinic, Youth Clinical Services, is associated with the York-Finch Hospital, Toronto.
5. Some examples: Montreal Youth Clinic, People's Free Clinic of Cote St. Luc (Montreal), Toronto Free Clinic, Scarboro Medifree, Rochdale Clinic (Toronto), Ottawa Street Clinic, Clinic Collective (London), Medifree Project (Kitchener), Klinik (Winnipeg), Vancouver Free Clinic.
6. Canadian Medical Association, Council on Community Health Care. Report to C.M.A. Board of Directors. Ottawa, March 14, 1971.
7. For example, Montreal Youth Clinic is an official extension of Meque Teaching Hospital.
8. Some examples: Dirnan (Halifax), Head and Hands (Montreal), Oolagen House (Toronto), Kiazam (Winnipeg).
9. Some examples of rural communes organized for therapeutic purposes: "New Options" near Halifax, Nova Scotia; "Aware House" near St. John, New Brunswick; "Crossroads" near Windsor, Ontario; "Get Your Act Together Enterprises", a Local Initiatives Project near Ottawa; "La Terre" at Wotton, Quebec.
10. *Criminal Code*, Sections 249 and 250.
11. R.S.C. 1970, c. J-3, s. 34.
12. In *Johnston v. The Wellesley Hospital and Williams* [1971] 2. O.R. 104, [1971] 17 D.L.R. 3d 139, it was held that a twenty year old youth could give a valid consent to a course of medical treatment. The inference from the approach in this decision would appear to be that it is a question of fact in each case whether there has been a valid consent by the minor. This approach has been referred to as that of the "mature minor." For recent discussions of consent to the medical treatment of minors see Eekelaar, J. M., "What are Parental Rights," (1973) 89 L.Q.R. 210 at 224ff, and Waddington, W., "Minors and Health Care: The Age of Consent," (1973) 11 O.H.L.J. 115.
13. 1972 Stat. Que., c. 42, s. 36.
14. Many "paramedical" staff members of innovative services want eventually to enter medicine in paraprofessional or professional roles. The director of the Ottawa Street Clinic has suggested a "medical indenturing" system whereby clinic personnel could attend medical school part time, while being credited for clinic work.
15. Particularly Opportunities for Youth and Local Initiatives.

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- Rankin, D. B.
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- Read, Dr. J. G.
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Street, T. G.
Chairman
National Parole Board
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Suprenant, J. R. G.
Chief, Secretariat
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Susman, Dr. Ralph
National Commission on Marihuana
and Drug Abuse
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Townsend, J. F.
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Department of the Solicitor General
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- Truitt, Dr. E. B., Jr.
Battelle Memorial Institute
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- Turnbull, Prof. J. H.
Applied Chemistry Branch
The Royal Military College of
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Wilts, England
- Tucker, Kitty
National Free Clinic Council
San Francisco, California
- Turner, Dr. Carlton
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- Uppal, J. C.
Formerly Executive Assistant
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- Verde, Jacques
Paris, France
- Vik, Dr. K. E.
Edmonton, Alberta
- Wagner, A.
Adult Probation Branch
Halifax, Nova Scotia
- Waller, Dr. Coy
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Sciences
University of Mississippi
University, Mississippi
- Waller, Irvin
Centre of Criminology
University of Toronto
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- Watt, Alistair, W.
Youth Agency
Halifax, Nova Scotia
- Weppner, Robert S.
NIMH Clinical Research Center
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- Whyte, Dr. Donald
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Carleton University
Ottawa, Ontario
- Wilkins, C. F.
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Government of the Northwest Ter-
ritories
Yellowknife, Northwest Territories
- Willox, John
British Columbia Borstal Association
Vancouver, British Columbia
- Wilson, B., Jr.
Parole and Community Services
Division
California Civil Addict Program
Los Angeles, California
- Wilson, E. V.
Bureau of Dangerous Drugs
Department of National Health and
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Ottawa, Ontario
- Winslow, Jens
Sociological Institute
University of Copenhagen
Copenhagen, Denmark
- Wood, Dr. Michael
Southern California Council of Free
Clinics
Los Angeles, California
- Wood, R. W.
California Rehabilitation Center
Corona, California
- Yablonsky, Dr. Lewis
California State College
Hayward, California
- Yawney, Carol
Williamsford, Ontario
- Zijderveld, Dr. A.
Sir George Williams University
Montreal, Quebec

Organizations and Individuals Who Presented Submissions to the Commission

ORGANIZATIONS

- Abbotsford Ministerial Association,
Abbotsford, British Columbia.
- Activator Society of British Columbia,
Vancouver, British Columbia.
- Addiction Research Foundation, To-
ronto, Ontario.
- Alberta Association of Students, Ed-
monton, Alberta.
- Alberta Department of Education, Ed-
monton, Alberta.
- Alberta Pharmaceutical Association,
Edmonton, Alberta.
- Alcohol and Drug Concerns Inc., To-
ronto, Ontario.
- Alcohol-Drug Education Council,
Vancouver, British Columbia.
- Alcohol Education and Community
Services Division, Department of
Health and Welfare, Saint John,
New Brunswick.
- Alcohol Education Service, Winnipeg,
Manitoba.
- Alcoholics Anonymous, Temporary
Central Office, Vancouver, British
Columbia.
- Alcoholism and Drug Addiction Foun-
dation of Newfoundland, St. John's,
Newfoundland.
- Alcoholism Foundation of British Co-
lumbia, Vancouver, British Colum-
bia.
- Alcoholism Foundation of Manitoba,
Winnipeg, Manitoba.
- Alcoholism Foundation of Prince Ed-
ward Island, Charlottetown, Prince
Edward Island.
- Alcoholism Rehabilitation Centre,
Saskatoon, Saskatchewan.
- Alma Mater Society, University of
British Columbia, Vancouver, Brit-
ish Columbia.
- Association des parents catholiques du
Québec, Racine, Quebec.
- Association of Canadian Distillers,
Montreal, Quebec.
- Beta Hi-Y, c/o Y.M.C.A., Halifax,
Nova Scotia.
- Bible Holiness Mission, Vancouver,
British Columbia.
- B'Nai B'Rith Women, District 221,
Montreal, Quebec.
- Board of School Commissioners' Spe-
cial Services Department, Halifax,
Nova Scotia.
- Boy Scouts of Canada, Kingston
Branch, Kingston, Ontario.
- British Columbia Parent-Teacher Fed-
eration, Vancouver, British Colum-
bia.
- British Columbia Pharmaceutical As-
sociation, Vancouver, British Co-
lumbia.

- British Columbia Special Counsellors' Association, Vancouver, British Columbia.
- British Columbia Voice of Women, Nanaimo, British Columbia.
- Calgary Public School Board, Calgary, Alberta.
- Canadian Association of Social Workers, Ottawa, Ontario.
- Canadian Bar Association, Young Lawyers' Conference, Toronto, Ontario.
- Canadian Barristers' Association, Alberta Division, Junior Bar Section, Calgary, Alberta.
- Canadian Civil Liberties Association, New Brunswick Chapter, Fredericton, New Brunswick.
- Canadian Council of Young Drivers, Toronto, Ontario.
- Canadian Criminology and Corrections' Associations, Ottawa, Ontario.
- Canadian Federation on Alcohol Problems, Toronto, Ontario.
- Canadian Home & School & Parent-Teacher Federation, Drug Education Committee, Toronto, Ontario.
- Canadian Labour Congress, Ottawa, Ontario.
- Canadian League of Rights, British Columbia Branch, Vancouver, British Columbia.
- Canadian Medical Association, Ottawa, Ontario.
- Canadian Mental Health Association, Ottawa, Ontario.
- Canadian Mental Health Association, British Columbia Division, Vancouver, British Columbia.
- Canadian Peace Research Institute, Oakville, Ontario.
- Canadian Pharmaceutical Association, Toronto, Ontario.
- Canadian Psychiatric Association, Ottawa, Ontario.
- Canadian Rehabilitation Association, Ottawa, Ontario.
- Canadian Student Liberals, Toronto, Ontario.
- Canadian Welfare Council, Montreal, Quebec.
- Catholic School Commission of Montreal, English Section, Montreal, Quebec.
- CEGEP de Sherbrooke, services aux étudiants, Sherbrooke, Quebec.
- Centre d'accueil pour alcooliques et autres toxicomanes, Shawinigan, Quebec.
- Centre d'orientation, Montreal, Quebec.
- Charlottetown Inter-Faith Group and The Priests' Senate of the Diocese of Charlottetown, Charlottetown, Prince Edward Island.
- Charlottetown Jaycees, Charlottetown, Prince Edward Island.
- Charlottetown Public School Board, Superintendent of Schools, Charlottetown, Prince Edward Island.
- Charlottetown School Principals, Superintendent of Schools, Charlottetown, Prince Edward Island.
- Children's Aid Society, Vancouver, British Columbia.
- Christian Reformed Church Ladies Society, Ottawa, Ontario.
- Church of Jesus Christ Latter-Day Saints, Etobicoke, Ontario.
- City of Niagara Falls, Niagara Falls, Ontario.
- City of Vancouver, Vancouver, British Columbia.
- City of Windsor, Civic Committee on Drugs, Windsor, Ontario.
- Civil Liberties Association of British Columbia, Vancouver, British Columbia.
- Clinique de l'enfant et de la famille, Montreal, Quebec.
- Clinique de réadaptation pour alcooliques, Pointe-du-Lac, Quebec.
- CODA Inter-Service Club Council, Kingston, Ontario.

- College of Physicians and Surgeons of British Columbia, Vancouver, British Columbia.
- Collège des pharmaciens de la province de Québec, Montreal, Quebec.
- Comité conjoint, Alerte à la drogue, Three Rivers, Quebec.
- Committee on the Misuse of Drugs and Narcotics, Human Resources Development Authority, Edmonton, Alberta.
- Committee Representing Youth Problems of Today (CRYPT), Winnipeg, Manitoba.
- Community Services Organization, St. Paul's Avenue Road United Church, Toronto, Ontario.
- Community Welfare Planning Council, Winnipeg, Manitoba.
- Council on Drug Abuse, Toronto, Ontario.
- Crisis Centre & House of Dawn Hostel, Regina, Saskatchewan.
- Dames Champlain, Habitation Marguerite d'Youville, Fort-Coulonge, Quebec.
- Dawson College, Westmount, Quebec.
- Department of the Attorney General, Province of Prince Edward Island, Charlottetown, Prince Edward Island.
- Department of Education, Province of Nova Scotia, Halifax, Nova Scotia.
- Department of Education and Justice, Province of Prince Edward Island, Charlottetown, Prince Edward Island.
- Department of Education, Province of Alberta, Edmonton, Alberta.
- Département de Pharmacologie, Université Laval, Quebec, Quebec.
- Department of Public Welfare, Halifax, Nova Scotia.
- Department of the Solicitor General of Canada, Ottawa, Ontario.
- Drop-In Centre, Thunder Bay, Ontario.
- Drug Advisory Council, University of Calgary, Calgary, Alberta.
- Drug Aid, Montreal, Quebec.
- Drug Alert Committee, Edmonton, Alberta.
- Drug Habituation Committee, British Columbia Medical Association, Vancouver, British Columbia.
- Drug Information Centre, Calgary, Alberta.
- Drug Information Centre, Thunder Bay, Ontario.
- Drug Sub Committee, Policy Committee of the Toronto and District Liberal Association, Toronto, Ontario.
- Dufferin-Peel County Roman Catholic Separate School Board, Dufferin-Peel County, Ontario.
- Eastview Secondary School, Business Education Department, Barrie, Ontario.
- Edmonton & District Council of Churches, Social Action Committee, Edmonton, Alberta.
- Edmonton Public School Board, Edmonton, Alberta.
- Elizabeth Fry Society, Kingston, Ontario.
- Elizabeth Fry Society, Toronto Branch, Toronto, Ontario.
- Elizabeth Fry Society of British Columbia, Social Action Committee, Vancouver, British Columbia.
- Environmental Health Laboratory, Winnipeg, Manitoba.
- Federated Women's Institutes of Canada, Tupperville, Nova Scotia.
- Fédération des Unions des Familles Inc., Montreal, Quebec.
- First Portsmouth (Kingston, Ontario) Cub and Scout Group, Kingston, Ontario.
- First United Church, Port Alberni, British Columbia.
- Fortune Society of Canada, Winnipeg Branch, Winnipeg, Manitoba.

- Greater Kamloops Chamber of Commerce, Kamloops, British Columbia.
- Greater Moncton Committee on Non-Medical Use of Drugs, Moncton, New Brunswick.
- Greater Vancouver Youth Communications Centre, (Cool-Aid), Vancouver, British Columbia.
- Greater Victoria Association on Alcoholism, Victoria, British Columbia.
- Greater Victoria School Board, Special Educational Services, Victoria, British Columbia.
- Group (The), Saint John, New Brunswick.
- Halifax Youth Communications Clinic, Halifax, Nova Scotia.
- Halifax Youth Communications Society, Scotia Square, Halifax, Nova Scotia.
- Hamilton Academy of Medicine, Hamilton, Ontario.
- Hamilton Conference of the United Church of Canada, Kitchener, Ontario.
- Hamilton Local Council of Women, Hamilton, Ontario.
- Hamilton Presbyterian United Church Women, Hamilton, Ontario.
- Heads & Hands, Montreal, Quebec.
- Hoffman-LaRoche Ltd., Montreal, Quebec.
- Hope Reformed Church, Vancouver, British Columbia.
- Howe Sound Citizens' Committee, Squamish, British Columbia.
- Humanist Association of Canada, Montreal, Quebec.
- Humanist Association of Ottawa, Ottawa, Ontario.
- Information Troupe, Toronto, Ontario.
- Institut de cardiologie de Québec, Université Laval, Quebec, Quebec.
- Interdepartmental Committee on Drug Abuse of the Province of New Brunswick, Fredericton, New Brunswick.
- Inter Service Club Council, Kiwanis Club of Kingston, Operation Drug Alert, Kingston, Ontario.
- Jaycettes, Delta, British Columbia.
- Jeune Chambre de Trois-Rivières Inc., Three Rivers, Quebec.
- Jewish Family and Child Service of Metropolitan Toronto, Trailer Project, Toronto, Ontario.
- Jewish General Hospital, Institute for Family and Community, Department of Psychiatry, Montreal, Quebec.
- John Howard Society of Ontario, Toronto, Ontario.
- John Howard Society of British Columbia, Vancouver, British Columbia.
- Kangaroo Court, Willowdale, Ontario.
- Kiwanis Club of Edmonton, Edmonton, Alberta.
- Kiwanis Club of Lake St. Louis, Montreal, Quebec.
- Kiwanis Club of Stamford Inc., Operation Drug Alert Programme, Niagara Falls, Ontario.
- Kiwanis Ontario-Quebec-Maritime (and Carribean) District, Casa Loma, Toronto, Ontario.
- Knights of Columbus, Charlottetown Council No. 824, Charlottetown, Prince Edward Island.
- Knox United Church, Agincourt, Ontario.
- Knox-Metropolitan United Church Women, Regina, Saskatchewan.
- Law Students' Association, Faculty of Law, University of British Columbia, Vancouver, British Columbia.
- Legalize Marihuana Committee, London, Ontario.
- Local Council of Women of Toronto, Willowdale, Ontario.

- London Board of Education, Research Division, London, Ontario.
- Manitoba Association for Children with Learning Disabilities, Winnipeg, Manitoba.
- Manitoba Medical Association, Committee on Drug Abuse, Winnipeg, Manitoba.
- Manitoba Psychiatric Association, Winnipeg, Manitoba.
- Mayor's Committee on Youth, Ottawa, Ontario.
- McGill University Health Service, Montreal, Quebec.
- Memorial University, Students' Union, Committee on Drugs, St. John's, Newfoundland.
- Mental Health Clinic, Saint John West, New Brunswick.
- Merri-Go-Round, Youth Group, Halifax, Nova Scotia.
- Mississauga St. Patrick's Catholic Women's League, Mississauga, Ontario.
- Mississauga University Women's Club, Mississauga, Ontario.
- Montreal Police Department, Youth Division, Montreal, Quebec.
- Montreal YMCA, Montreal, Quebec.
- Moose Jaw Council of Women, Moose Jaw, Saskatchewan.
- Mouvement des femmes chrétiennes, paroisse Ste-Famille, Sherbrooke, Quebec.
- Municipality of the District of Digby, Digby, Nova Scotia.
- Mysterious East, Fredericton, New Brunswick.
- Nanaimo Youth Crisis Centre, Nanaimo, British Columbia.
- Narcotic Addiction Foundation of British Columbia, Vancouver, British Columbia.
- National Council of Jewish Women of Canada, Vancouver, British Columbia.
- National Council of Women of Canada, Ottawa, Ontario.
- National Film Board, Ottawa, Ontario.
- National Parent-Youth Alert Inc., Ottawa, Ontario.
- New Brunswick Federation on Alcohol Drug Problems, McAdam, New Brunswick.
- New Brunswick Pharmaceutical Association, Drug Abuse Program, Rothesay, New Brunswick.
- New Brunswick Teachers' Association, Fredericton, New Brunswick.
- New Glasgow United Church Women, Charlottetown, Prince Edward Island.
- Newfoundland Medical Association, St. John's, Newfoundland.
- Newfoundland Pharmaceutical Association, St. John's, Newfoundland.
- Newfoundland Teachers' Association, St. John's, Newfoundland.
- North Shore Unitarian Church, Social Action Committee, North Vancouver, British Columbia.
- North Toronto Youth Project, Toronto, Ontario.
- Northland Presbytery, Manitoba Conference, United Church of Canada, Lynn Lake, Manitoba.
- Nova Scotia Federation of Home and School Associations, Truro, Nova Scotia.
- Nova Scotia Task Force on the Non-Medical Use of Drugs, Halifax, Nova Scotia.
- Office de la prévention et de traitement de l'alcoolisme et des autres toxicomanies (OPTAT), Quebec, Quebec.
- Ontario Department of Education, Toronto, Ontario.
- Ontario Federation of Home and School Associations, Ottawa, Ontario.
- Ontario Medical Association, Toronto, Ontario.

P Organizations and Individuals Who Presented Submissions

- Ontario Progressive Conservative Student Association, Toronto, Ontario.
- Operation Crime Check, Montreal, Quebec.
- Ottawa-Carleton Committee on Drug Abuse, Ottawa Board of Education, Ottawa, Ontario.
- Ottawa Roman Catholic Separate School Board, Ottawa, Ontario.
- Ottawa United Church Women, Ottawa, Ontario.
- Oxford Presbytery (Ontario), United Church of Canada, Toronto, Ontario.
- Parents Anonymous of British Columbia.
- Parents Anonymous of Vancouver, North Vancouver, British Columbia.
- Parents of Drug Abusers, Kingston, Ontario.
- Peel County Task Force on Drugs, Cooksville, Ontario.
- Peel County Task Force on Drugs, Port Credit, Ontario.
- People's Youth Clinic, Montreal, Quebec.
- Penny Farthing Victorian Coffee House, Toronto, Ontario.
- Penticton Parents Anonymous, Vancouver, British Columbia.
- Pharmaceutical Manufacturers Association of Canada, Ottawa, Ontario.
- Premier's Task Force, Charlottetown, Prince Edward Island.
- Presbyterian Church in Canada, Board of Evangelism and Social Action, Don Mills, Ontario.
- Prescription Services Incorporated, Windsor, Ontario.
- Primrose Conservative League of British Columbia, Vancouver, British Columbia.
- Prince Edward Island Department of Education and Justice, Charlottetown, Prince Edward Island.
- Prince Edward Island Federation of Home & School Associations, Charlottetown, Prince Edward Island.
- Prince Edward Island Federation of Labour, Charlottetown, Prince Edward Island.
- Prince Edward Island Nurses Association, Charlottetown, Prince Edward Island.
- Probation Officers' Association of Ontario, Toronto, Ontario.
- Protestant School Board of Greater Montreal, Montreal, Quebec.
- Provincial Council of Women of British Columbia, Vancouver, British Columbia.
- Provincial Council of Women of British Columbia, Vancouver, British Columbia.
- Provincial Council of Women of Edmonton, Alberta.
- Provincial Council of Women of Ontario, Toronto, Ontario.
- Quakers (Western Half Yearly Meeting of Friends), Argenta, British Columbia.
- Quebec Federal Liberal Association, Policy Commission, Beaconsfield, Quebec.
- Radicals for Capitalism, Toronto, Ontario.
- Regina Board of Education, Regina, Saskatchewan.
- Regina Special Committee on New Approaches to Drug Abuse, Regina, Saskatchewan.
- Riverside United Church, Ottawa, Ontario.
- Rochdale College, Board of Directors, Toronto, Ontario.
- Royal Canadian Mounted Police, Ottawa, Ontario.
- St. Andrew's River Heights, United Church of Canada, Winnipeg, Manitoba.
- St. Andrew's United Church Women, Edmonton, Alberta.

- Saint John District Council of Home and School Associations, Saint John, New Brunswick.
- Saint John Medical Society, Saint John, New Brunswick.
- Saint John School Board, Saint John, New Brunswick.
- Saint Lawrence College, Quebec, Quebec.
- Saint Thomas University, Students' Council, Fredericton, New Brunswick.
- Salvation Army, Toronto, Ontario.
- Sargeant Park Home and School Association, Winnipeg, Manitoba.
- Saskatchewan Association of Social Workers, Saskatoon, Saskatchewan.
- Saskatchewan, the Department of Attorney General, Regina, Saskatchewan.
- Saskatchewan Federation of Home and School Associations, Regina, Saskatchewan.
- Saskatchewan Hospital, North Battleford, Saskatchewan.
- Saskatchewan Hospital Auxiliaries Association, Shellbrook, Saskatchewan.
- Saskatchewan Province, Regina, Saskatchewan.
- Saskatchewan Provincial Council of Women, Regina, Saskatchewan.
- Scarborough Don Mills Inter Church Committee on Drug Abuse, Scarborough, Ontario.
- School of Social Work, University of Windsor, Windsor, Ontario.
- Social Action Committee, First Baptist Church, Edmonton, Alberta.
- Social Planning Council of Metropolitan Toronto, Toronto, Ontario.
- Social Workers of the Mauricie Region, La Tuque, Quebec.
- South Shore Protestant Regional School Board, St. Lambert, Quebec.
- Spera Foundation, Rawdon, Quebec.
- Squamish District Council, District of Squamish, City Hall, Squamish, British Columbia.
- Students' Council of Carleton University, Ottawa, Ontario.
- Student Counselling Services, University of Alberta, Edmonton, Alberta.
- Students' Union, University of Saskatchewan, Regina, Saskatchewan.
- Study of Non-Medical Use of Drugs Committee, Hamilton and District Council of Women, Hamilton, Ontario.
- Sudbury Y.M.C.A., Sudbury, Ontario.
- Sûreté municipale de la Ville de Montréal, Montreal, Quebec.
- Swift Current Local Council of Women, Swift Current, Saskatchewan.
- Swift Current Ministerial Association, Swift Current, Saskatchewan.
- Tell-It-As-It-Is, Board of Directors, Montreal, Quebec.
- Temple Rodeph Shalom, Social Concern Committee, Montreal, Quebec.
- Thirteenth Floor Cooperative, Community for Participants of the Utopian Research Institute, Rochdale College, Toronto, Ontario.
- Thomas Merton Clinic, Magog, Quebec.
- Toc Alpha, Don Mills, Ontario.
- Toronto Board of Education, Toronto, Ontario.
- Toronto City Council, Toronto, Ontario.
- Toronto & District Liberal Association, Toronto, Ontario.
- Toronto Free Youth Clinic, Toronto, Ontario.
- Toronto Stake of the Church of Jesus Christ of Latter-Day Saints, Etobicoke, Ontario.
- Trust, Edmonton Youth Emergency Society, Edmonton, Alberta.
- Unitarian Service Commission, Charlottetown, Prince Edward Island.
- United Church of Canada, Board of Evangelism and Social Service, Toronto, Ontario.

P Organizations and Individuals Who Presented Submissions

- United Nations Association, Montreal, Quebec.
- University Chaplain's Association, University of Calgary, Calgary, Alberta.
- University Women's Club of North York, Toronto, Ontario.
- University Women's Club, Victoria, British Columbia.
- Vancouver Board of Trade, Vancouver, British Columbia.
- Vancouver City Police Department, Vancouver, British Columbia.
- Vancouver District Women's Christian Temperance Union, Vancouver, British Columbia.
- Vancouver Inner-City Service Project, Vancouver, British Columbia.
- Vancouver Jaycettes, Vancouver, British Columbia.
- Victoria Voice of Women, Victoria, British Columbia.
- Victoria Free Clinic, Victoria, British Columbia.
- Victoria Youth Council, Victoria, British Columbia.
- Wesleyan Methodist Church of America in Canada, Trenton, Ontario.
- West Island Social Action Committee, Youth Clinic, Montreal, Quebec.
- West Point Grey Liberal Policy Committee, Quadra Constituency Association, Vancouver, British Columbia.
- Windsor Civic Committee on Drugs, Windsor, Ontario.
- Women's Christian Temperance Union of British Columbia, Victoria, British Columbia.
- Women's Christian Temperance Union, Winnipeg, Manitoba.
- Women's Institute of Prince Edward Island, Charlottetown, Prince Edward Island.
- X-Kalay Foundation Society, Vancouver, British Columbia.
- Young Lawyers' Conference of the Alberta Section of the Canadian Bar Association, Calgary, Alberta.
- Young Men's Christian Association, Halifax, Nova Scotia.
- Young Men's Christian Association, Committee on Youthful Drug Use, Hamilton, Ontario.
- Young Men's Christian Association, Board of Directors, Montreal, Quebec.
- YM-YWCA Drop-In Centre, Ottawa, Ontario.
- Young Women's Christian Association of Canada, Toronto, Ontario.

INDIVIDUALS

- Aimers, Mr. John L., Young Progressive Conservatives of Canada, Montreal, Quebec.
- Aldous, Dr. J. G., Dalhousie University, Halifax, Nova Scotia.
- Amaron, Mr. Robert, Renfrew, Ontario.
- Anderson, Dr. R. L., University of Alberta, Edmonton, Alberta.
- Areñson, Mr. Kenneth, Winnipeg, Manitoba.
- Asselstine, Mrs. Asta, Winnipeg, Manitoba.
- Assimi, Dr. A., Lakehead University, Thunder Bay, Ontario.
- Astin, Mrs. M., New Westminster, British Columbia.
- Banik, Dr. Sambhu N., University Hospital, Saskatoon, Saskatchewan.
- Banville, Mr. R., Sept-Îles, Quebec.
- Barclay, Mr. J. F., University of Alberta, Edmonton, Alberta.
- Baron, Mr. Jonathan, McMaster University, Hamilton, Ontario.
- Barootes, Dr. E. W., Regina, Saskatchewan.

- Beach, Dr. Horace D., Dalhousie University, Halifax, Nova Scotia.
- Beaulieu, Professor Claude, University of Quebec, Montreal, Quebec.
- Bennett, Mr. Peter, Alcoholism Committee of Saskatchewan, Regina, Saskatchewan.
- Bennett, Mr. Wayne, Regina, Saskatchewan.
- Bertrand, Lieut. Elzear, Police Department, Quebec, Quebec.
- Blewett, Dr. Duncan, Regina, Saskatchewan.
- Boddie, Dr. Charles, Memorial University of Newfoundland, St. John's, Newfoundland.
- Boden, Reverend Robert, Church of the Nazarene, Fredericton, New Brunswick.
- Boyce, Dr. Murray, University of Western Ontario, London, Ontario.
- Brady, Mr. John, University of Western Ontario, London, Ontario.
- Brand, Mr. Robert H., Burlington, Ontario.
- Briggs, Dr. Robert, Queen's University, Kingston, Ontario.
- Bruce, Mr. R., Guidance Specialist, Scarborough, Ontario.
- Buckner, Professor T., Sir George Williams University, Montreal, Quebec.
- Burditt, Dr. A. M., Saint John, New Brunswick.
- Burke, Dr. H. C., Mount Allison University, Sackville, New Brunswick.
- Burton, Rev. A. J., Edith Ave. United Baptist Church, Saint John, New Brunswick.
- Butler, Mr. Phillip, Vancouver, British Columbia.
- Campbell, Mr. Brian, Vancouver, British Columbia.
- Cargo, Mr. John, McMaster University, Hamilton, Ontario.
- Caron, Mr. Fernand, University of Quebec, Three Rivers, Quebec.
- Carter, Dr. Robert E., Sir George Williams University, Montreal, Quebec.
- Cathcart, Dr. L. M., University of British Columbia, Vancouver, British Columbia.
- Cashen, Mrs. M. I., Ottawa, Ontario.
- Cayouette, Mr. Richard, Ministère de l'Agriculture et de la Colonisation, Quebec, Quebec.
- Chalmers, Mr. N. A., Q.C., Department of Justice of Canada, Toronto, Ontario.
- Chapman, Mr. Bruce, Mount Allison University, Sackville, New Brunswick.
- Chiles, Mr. Vernon K., Sarnia Pharmacy, Sarnia, Ontario.
- Christie, Miss Norma, Q.C., Department of Justice of Canada, Vancouver, British Columbia.
- Christopherson, Mr. C. J., Vancouver, British Columbia.
- Clarkson, Mr. Reginald, Victoria, British Columbia.
- Clarkson, Professor Stephen, University of Toronto, Toronto, Ontario.
- Clement, Mr. Wilfrid C., Toronto, Ontario.
- Cloud, Professor Jonathan, York University, Downsview, Ontario.
- Cody, Mr. Howard, Vancouver, British Columbia.
- Cohen, Dr. M., Children's Hospital, Buffalo, New York.
- Cohen, Dr. S., Regina, Saskatchewan.
- Colby, Mr. Dennis, Toronto, Ontario.
- Cook, Dr. David, University of Alberta, Edmonton, Alberta.
- Cook, Mrs. Shirley J., University of Toronto, Toronto, Ontario.
- Copley, Mr. D. R., Markham, Ontario.
- Corey, Dr. Margaret, Dalhousie University, Halifax, Nova Scotia.

- Cornil, Professor Paul, University of Montreal, Montreal, Quebec.
- Could, Miss Rebecca, Sackville High School, Sackville, New Brunswick.
- Coulombe, Mr. Roland, Montreal, Quebec.
- Craig, Dr. David, Edmonton, Alberta.
- Crawford, Mr. Brian, Sackville, New Brunswick.
- Cundill, Mr. G., Calgary, Alberta.
- Cunningham, Mr. Kenneth, Confederation College, Thunder Bay, Ontario.
- Danis, Mr. Armand, Westgate High School, Thunder Bay, Ontario.
- Davidson, Mr. Robert, University of Alberta, Edmonton, Alberta.
- Decarie, Professor M. G., University of Prince Edward Island, Charlottetown, Prince Edward Island.
- Delaney, Dr. J. A., City Coroner, Fredericton, New Brunswick.
- Dessureault, Professor Jacques, University of Quebec, Three Rivers, Quebec.
- Devlin, Mr. Terry, Vancouver, British Columbia.
- Donovan, Mr. Greg, Nova Scotia Youth Agency, Halifax, Nova Scotia.
- Douyon, Professor Emerson, University of Montreal, Montreal, Quebec.
- Dunlop, Mr. Michael, Vancouver, British Columbia.
- Dunsworth, Dr. F. A., Halifax, Nova Scotia.
- Ellenberger, Dr. Henri F., University of Montreal, Montreal, Quebec.
- Evans, Mrs. Phyllis, Rexdale, Ontario.
- Falardeau, Professor Jacques, University of Quebec, Three Rivers, Quebec.
- Fattah, Professor M. E., University of Montreal, Montreal, Quebec.
- Faulkner, Mr. John, Edmonton, Alberta.
- Fenske, Reverend T., Department of National Defence, Halifax, Nova Scotia.
- Flight, Mr. Harvey, St. John's, Newfoundland.
- Floyd, Mr. and Mrs. Stan, University of British Columbia, Vancouver, British Columbia.
- Forestell, Mr. Francis, Department of Justice, Fredericton, New Brunswick.
- Foulks, Dr. James G., University of British Columbia, Vancouver, British Columbia.
- Fowells, Mr. Gavin, Ottawa, Ontario.
- Frank, Dr. George B., University of Alberta, Edmonton, Alberta.
- Freedman, Mr. Bernard, Saint John, New Brunswick.
- Gagné, Mr. Denis, University of Montreal, Montreal, Quebec.
- Gagnon, Mr. Claude, Institute of Medieval Studies, University of Montreal, Montreal, Quebec.
- Gander, Mrs. Lea, Ottawa, Ontario.
- Gaussiran, Mr. Michel, University of Montreal, Montreal, Quebec.
- Ghan, Mr. Leonard, Regina, Saskatchewan.
- Gibseghen, Mr. Hubert, Centre d'orientation, Montreal, Quebec.
- Golden, Mr. Allan, Windsor, Ontario.
- Gordon, Mr. John M., Peterborough, Ontario.
- Grant, Dr. Sydney, Fredericton, New Brunswick.
- Green, Mr. B., Toronto, Ontario.
- Grindstaff, Mr. Carl, University of Western Ontario, London, Ontario.
- Grossman, Professor Brian, McGill University, Montreal, Quebec.
- Gurevich, Mr. Howard, Winnipeg, Manitoba.
- Gustin, Dr. Ann, University of Saskatchewan, Regina, Saskatchewan.
- Hagen, Dr. Derek L., Fredericton, New Brunswick.

- Hall, Miss Dorothy, Vancouver, British Columbia.
- Hansen, Dr. E. S., Acadia University, Wolfville, Nova Scotia.
- Hastie, Mr. J., Willowdale, Ontario.
- Hatfield, Mr. Richard, Fredericton, New Brunswick.
- Hawboldt, Mrs. L. S., Halifax, Nova Scotia.
- Henderson, Mr. Harry, Charlottetown, Prince Edward Island.
- Henley, Mr. Steve, St. John's, Newfoundland.
- Herren, Dr. Steven, University of Saskatchewan, Regina, Saskatchewan.
- Hill, Mr. Terry, Toronto, Ontario.
- Hill, Mr. J., Vancouver, British Columbia.
- Hoffer, Dr. A., Saskatoon, Saskatchewan.
- Holland, Reverend D., Gonzaga High School, St. John's, Newfoundland.
- Hoskin, Mr. H. F., Vancouver, British Columbia.
- Howell, Mrs. Sheila, Kingston, Ontario.
- Jamha, Mr. Roy, Edmonton, Alberta.
- Jamieson, Dr. W. R. E., Fredericton, New Brunswick.
- Jobson, Mr. K. B., Dalhousie University, Halifax, Nova Scotia.
- Jones, Mr. R. C., Department of Social Development, Edmonton, Alberta.
- Julien, Professor M., University of Alberta, Edmonton, Alberta.
- Kirkham, Mr. Tim, Penticton, British Columbia.
- Kitz, Mr. Leonard, Q.C., Halifax, Nova Scotia.
- Kositsky, Mr. J., Winnipeg, Manitoba.
- Kuropatwa, Mr. Ralph, Winnipeg, Manitoba.
- Kushner, Dr. Wilkie, Halifax, Nova Scotia.
- Lake, Mr. B. U., Ottawa, Ontario.
- Lalonde, Dr. Pierre, University of Montreal, Montreal, Quebec.
- Lambert, Mr. Dave, Fredericton, New Brunswick.
- Lamrock, Mr. Leonard, Mount Allison University, Sackville, New Brunswick.
- Landry, Mr. L. P., Q.C., Department of Justice, Montreal, Quebec.
- Languirand, Mr. Jacques, Westmount, Quebec.
- LaPointe, Mr. John, Toronto, Ontario.
- Lapointe-Michaud, Mrs. Blanche, Ottawa, Ontario.
- Laud, Mr. J. H., Vancouver, British Columbia.
- Lavery, Professor S. G., Queen's University, Kingston, Ontario.
- LeBel, Mr. Bernard, University of Montreal, Montreal, Quebec.
- LeBlanc, Dr. J., Clinique de réadaptation pour alcooliques, Pointe-du-Lac, Quebec.
- Lee, Mr. Terry, McMaster University, Hamilton, Ontario.
- Leon, Dr. Wolf, Provincial Department of Health, Charlottetown, Prince Edward Island.
- Leslie, Mr. David F., Vancouver, British Columbia.
- Levesque, Mrs. Blandine, Hôpital du Christ-Roi, Quebec, Quebec.
- Levin, Mr. George, Mount Allison University, Sackville, New Brunswick.
- Levine, Dr. Saul, Hospital for Sick Children, Toronto, Ontario.
- Lewis, Mr. W. G., Harrow, Ontario.
- Linde, Mr. Gary, University of British Columbia, Vancouver, British Columbia.

P Organizations and Individuals Who Presented Submissions

- Ling, Dr. George, University of Ottawa, Ottawa, Ontario.
- Lorimer, Mr. R. M., Simon Fraser University, Burnaby, British Columbia.
- Love, Mr. D., Calgary, Alberta.
- Low, Professor Kenneth, Calgary, Alberta.
- Luka, Mr. Leslie B., Don Mills Collegiate Institute, Don Mills, Ontario.
- Lundell, Dr. F. W., Montreal, Quebec.
- Lynch, Mr. Thomas, London, Ontario.
- Lyon, Mr. Israel, University of Manitoba, Winnipeg, Manitoba.
- MacGill, Mr. Neil W., University of New Brunswick, Fredericton, New Brunswick.
- MacKenzie, Professor K. R., University of Calgary, Calgary, Alberta.
- MacLean, Reverend Ian, United Church of Canada, Fredericton, New Brunswick.
- Macneill, Miss Isabel, Mill Village, Queen's County, Nova Scotia.
- McAlister, Mr. Alexander, Toronto, Ontario.
- McAmmond, Professor D., University of Calgary, Calgary, Alberta.
- McBay, Mr. T. P., Vancouver, British Columbia.
- McCuaig, Reverend Malcolm, Church of St. James, Charlottetown, Prince Edward Island.
- McDonald, Dr. Angus, Clarke Institute of Psychiatry, Toronto, Ontario.
- McDonald, Mr. Brian R., Edmonton, Alberta.
- McDonald, Dr. Lynn, McMaster University, Hamilton, Ontario.
- McGaw, Mr. David, Fredericton, New Brunswick.
- McKillop, Mr. D. B., Thunder Bay, Ontario.
- McLaughlin, Mr. Donald R., Montreal, Quebec.
- McLeod, Miss Illette, Vancouver, British Columbia.
- McLeod, Dr. Neil, Fort William Clinic, Thunder Bay, Ontario.
- McRae, Mr. E. D., Vancouver, British Columbia.
- McWhirter, Mr. K. G., Edmonton, Alberta.
- Mahaffy, Mr. Bry David, Ottawa, Ontario.
- Mahoney, Mr. Michael, Kingston, Ontario.
- Malloy, Brother Kevin, Brother Rice High School, St. John's, Newfoundland.
- Mansfield, Mr. N., Vancouver, British Columbia.
- Marier, Professor Gérard, University of Quebec, Three Rivers, Quebec.
- Martin, Dr. Douglas, Toronto, Ontario.
- Mason, Mr. Ian, University of Toronto, Toronto, Ontario.
- Mechoulam, Dr. Raphael, Hebrew University of Jerusalem, Israel.
- Medill, Mr. James, Surrey, British Columbia.
- Meehan, Mr. Michael R., District of Sudbury Federal Prosecutor, Sudbury, Ontario.
- Milton, Mrs. P. B., Saint John, New Brunswick.
- Mitchell, Mrs. Ellen, St. John Fisher Church CWL, Bramalea, Ontario.
- Moghadam, Dr. Hossein K., University of Toronto, Toronto, Ontario.
- Moore, Mrs. Gerald, Truro, Nova Scotia.
- Morin, Dr. Yves, Institut de cardiologie du Québec, Quebec, Quebec.
- Morley, Professor Gregory, University of Western Ontario, London, Ontario.
- Morrison, Dr. William, University of Winnipeg, Winnipeg, Manitoba.

- Morton, Dr. A., Nova Scotia Mental Hospital, Dartmouth, Nova Scotia.
- Mouledoux, Professor Joseph, Sir George Williams University, Montreal, Quebec.
- Mountenay, Dr. Donald, Regina, Saskatchewan.
- Munro, Mr. Robert, London, Ontario.
- Munroe, Miss I. A., University of Alberta, Edmonton, Alberta.
- Murray, Mr. David, Stoney Creek, Ontario.
- Naidu, Dr. S. B., University of Moncton, Moncton, New Brunswick.
- Nash, Dr. John C., University of Waterloo, Waterloo, Ontario.
- Neamta, Miss Gertrude, Montreal, Quebec.
- Nelson, Mrs. Sally, Montreal, Quebec.
- Nevin, Mr. W. H., North Vancouver, British Columbia.
- Newton-Smith, Richard and Sheila, Windsor, Ontario.
- Nicholson, Mr. Jack, Charlottetown, Prince Edward Island.
- Nickerson, Dr. Mark, McGill University, Montreal, Quebec.
- Nixon, Mr. Gary, Vancouver, British Columbia.
- Norman, Mr. Charles, Winnipeg, Manitoba.
- Ogden, Mr. Frank, Montreal, Quebec.
- Olsson, Mrs. Staig, Saint John, New Brunswick.
- Page, Mr. Harold J., Victoria, British Columbia.
- Paterson, Mr. J. Craig, University of Western Ontario, London, Ontario.
- Pearce, Dr. K. I., University of Calgary, Calgary, Alberta.
- Pelletier, Mr. D., Montreal, Quebec.
- Peltier, Mr. Louis L., Jr., Thunder Bay, Ontario.
- Pendergast, Reverend Arthur J., Saint Lawrence College, Quebec, Quebec.
- Penner, Professor Rolland, University of Manitoba, Winnipeg, Manitoba.
- Peters, Mr. Kenneth Gordon, Education Resources Centre, Sudbury, Ontario.
- Phillips, Mr. D. L., Victoria, British Columbia.
- Pinard, Mr. Pierre, Three Rivers, Quebec.
- Pitts, Reverend F. J. H., Christ Anglican Church, Kitchener, Ontario.
- Poliquin, Mr. J. J., Three Rivers, Quebec.
- Porter, Professor James, York University, Toronto, Ontario.
- Potts, Mrs. Lynda, Windsor, Ontario.
- Pownall, Mr. & Mrs. Steve, Windsor, Ontario.
- Radouco-Thomas, Dr. C. and Dr. S., Laval University, Quebec, Quebec.
- Rakoff, Dr. Vivian, Clarke Institute of Psychiatry, Toronto, Ontario.
- Reed, Mr. Jerry, Vancouver, British Columbia.
- Reich, Dr. Carl J., Calgary, Alberta.
- Reiffenstein, Professor R. J., University of Alberta, Edmonton, Alberta.
- Richardson, Dr. D. W., Queen's University, Kingston, Ontario.
- Richmond, Dr. R. E. G., Department of the Attorney General, Vancouver, British Columbia.
- Rittenhouse, Mr. J. E., Vancouver, British Columbia.
- Robertson, Professor A. H., University of New Brunswick, Fredericton, New Brunswick.
- Robins, Dr. Lee, Washington University, St. Louis, Missouri.
- Roper, Dr. Peter, Montreal, Quebec.
- Ross, Mr. Daniel, University of Western Ontario, London, Ontario.
- Ross, Mr. Peter, Sherbrooke, Quebec.
- Rothwell, Dr. A., Calgary, Alberta.
- Roxburgh, Dr. P., University of Calgary, Calgary, Alberta.

P Organizations and Individuals Who Presented Submissions

- Rush, Professor G. B., Simon Fraser University, Vancouver, British Columbia.
- Rutman, Professor Leonard, University of Winnipeg, Winnipeg, Manitoba.
- Ryan, Professor Stuart, Queen's University, Kingston, Ontario.
- Samuels, Mr. Jeffrey, York University, Toronto, Ontario.
- Saulnier, Mr. Maurice, Maisonneuve University, Montreal, Quebec.
- Schafer, Mr. Reuben, Toronto, Ontario.
- Schlegel, Assistant Professor R. P., University of Windsor, Windsor, Ontario.
- Schumiatcher, Dr. Morris C., Q.C., Regina, Saskatchewan.
- Schwartz, Dr. Conrad J., University of British Columbia, Vancouver, British Columbia.
- Scott, Dr. George, Canadian Penitentiary Service, Kingston, Ontario.
- Segal, Dr. Mark, Dalhousie University, Halifax, Nova Scotia.
- Sharpe, Mr. Robin, Vancouver, British Columbia.
- Shaw, Mrs. Ellen, Richmond, British Columbia.
- Shragge, Mr. Sherve, Regina, Saskatchewan.
- Shuster, Mr. Bernard, Montreal, Quebec.
- Siegel, Dr. Ronald K., Dalhousie University, Halifax, Nova Scotia.
- Silverman, Dr. Saul, Prince Edward Island University, Charlottetown, Prince Edward Island.
- Simms, Mr. Thomas M., Saint Thomas University, Fredericton, New Brunswick.
- Simons, Mr. Sidney, Q.C., Vancouver, British Columbia.
- Skirrow, Professor J., University of Calgary, Calgary, Alberta.
- Slaughnwhite, Mr. Bradley, Sackville High School, Sackville, Nova Scotia.
- Smith, Mr. G. Brian, Sackville, New Brunswick.
- Solomon, Professor David, York University, Toronto, Ontario.
- Solursh, Dr. L. P., Toronto General Hospital, Toronto, Ontario.
- Solway, Mr. Jeff, Downsview, Ontario.
- Spector, Dr. Malcolm, McGill University, Montreal, Quebec.
- Spellman, Dr. J. W., University of Windsor, Windsor, Ontario.
- Stein, Mr. Allan, Spruce Grove, Alberta.
- Stein, Dr. Samuel, Jewish General Hospital, Montreal, Quebec.
- Steinhart, Mr. James, Ottawa, Ontario.
- Stennet, Mr. R. G., Addiction Research Foundation, London, Ontario.
- Suthers, Mr. D., Burlington, Ontario.
- Suzuki, Dr. D., University of British Columbia, Vancouver, British Columbia.
- Szabo, Dr. Denis, University of Montreal, Montreal, Quebec.
- Taylor, Mr. G., Calgary, Alberta.
- Therien, Mr. Marcel M., Three Rivers, Quebec.
- Thompson, Mr. Lloyd, Saskatoon, Saskatchewan.
- Thurlow, Dr. John, University of Western Ontario, London, Ontario.
- Timovrian, Mr. J. G., University of Alberta, Edmonton, Alberta.
- Topping, Professor C. W., University of British Columbia, Vancouver, British Columbia.
- Trivett, Reverend D. F. L., Dalhousie University, Halifax, Nova Scotia.
- Trottier, Mr. Michel, Clinique pour l'aide à l'enfance, Quebec, Quebec.
- Tylke, Mr. Donald H., Toronto, Ontario.

- Unwin, Dr. J. Robertson, Allen Memorial Institute, Montreal, Quebec.
- Upfold, Mr. Michael, McMaster University, Hamilton, Ontario.
- Vikander, Professor Nils, Saint Thomas University, Fredericton, New Brunswick.
- Villeneuve, Dr. Andre, Hôpital St-Michel-Archange, Mastai, Quebec.
- Voft, Mrs. Ruth, Regina, Saskatchewan.
- Wachna, Dr. Anthony, Windsor, Ontario.
- Walker, Mr. Eddy, Winnipeg, Manitoba.
- Watt, Mrs. Donna, Vancouver, British Columbia.
- Watt, Mr. F. B., Ottawa, Ontario.
- Watt, Mr. James W., Sarnia Pharmacy, Sarnia, Ontario.
- Wayman, Mr. Ted, Fredericton, New Brunswick.
- Westmiller, Mr. W. J., Kingston, Ontario.
- Weston, Reverend Hugh, Saskatoon, Saskatchewan.
- Whealy, Mr. Arthur, Toronto, Ontario.
- Whitehead, Professor Paul C., Dalhousie University, Halifax, Nova Scotia.
- Whitney, Miss Beverley, London, Ontario.
- Wilson, Mr. Ray, McMaster University, Hamilton, Ontario.
- Wilson, Mr. S. L., Sackville, New Brunswick.
- Wood, Mr. John N., St. John's, Newfoundland.
- Wood, Dr. J. K. Saskatoon, Saskatchewan.
- Wright, Miss Jane E., Toronto, Ontario.
- Wybranowska, Mr. A. M., Vancouver, British Columbia.
- Wytrwal, Mr. John, Kitchener, Ontario.
- Yeudall, Mr. Lorne, University of Alberta, Edmonton, Alberta.
- Yonge, Dr. Keith, Edmonton, Alberta.
- Zlotkin, Mr. N. K., Toronto, Ontario.

Schedule of the Commission's Public Hearings

TORONTO	St. Lawrence Hall	Oct. 16, 1969
	York University	Oct. 16, 1969
	St. Lawrence Hall	Oct. 17, 1969
	University of Toronto	Oct. 17, 1969
	Penny Farthing Coffee House	Oct. 17, 1969
	St. Lawrence Hall	Oct. 18, 1969
VANCOUVER	Queen Elizabeth Playhouse	Oct. 30, 1969
	Hotel Vancouver	Oct. 30, 1969
	Queen Elizabeth Playhouse	Oct. 31, 1969
	University of British Columbia	Oct. 31, 1969
	Bistro Coffee House	Oct. 31, 1969
VICTORIA	City Hall Council Chambers	Nov. 1, 1969
MONTREAL	Queen Elizabeth Hotel	Nov. 6, 1969
	McGill University	Nov. 6, 1969
	University of Montreal	Nov. 6, 1969
	Queen Elizabeth Hotel	Nov. 7, 1969
	Sir George Williams University	Nov. 7, 1969
	Back Door Coffee House	Nov. 7, 1969
	Queen Elizabeth Hotel	Nov. 8, 1969
WINNIPEG	Norquay Building	Nov. 13, 1969
	University of Manitoba	Nov. 13, 1969
	Norquay Building	Nov. 14, 1969
	Civic Auditorium	Nov. 14, 1969
	University of Winnipeg	Nov. 14, 1969
OTTAWA	National Library	Dec. 12, 1969
	University of Ottawa	Dec. 12, 1969
	Carleton University	Dec. 12, 1969
	National Library	Dec. 13, 1969

Appendix Q

HALIFAX	Lord Nelson Hotel	Jan. 29, 1970
	Queen Elizabeth Auditorium	Jan. 29, 1970
	Lord Nelson Hotel	Jan. 30, 1970
	Dalhousie University	Jan. 30, 1970
ST. JOHN'S	Newfoundland Hotel	Jan. 31, 1970
	Memorial University	Jan. 31, 1970
FREDERICTON	Lord Beaverbrook Hotel	Feb. 19, 1970
	University of New Brunswick	Feb. 19, 1970
MONCTON	Harrison Trimble High School	Feb. 20, 1970
	University of Moncton	Feb. 20, 1970
SACKVILLE	Mount Allison University	Feb. 20, 1970
CHARLOTTE-TOWN	Centennial Centre	Feb. 21, 1970
	University of Prince Edward Island	Feb. 21, 1970
KINGSTON	City Hall	Mar. 5, 1970
	Queen's University	Mar. 5, 1970
QUEBEC	Chateau Frontenac	Apr. 3, 1970
	Laval University	Apr. 3, 1970
	CEGEP de Linoilou	Apr. 3, 1970
	Chateau Frontenac	Apr. 4, 1970
REGINA	Hotel Saskatchewan	Apr. 9, 1970
	University of Saskatchewan	Apr. 9, 1970
SASKATOON	Centennial Centre	Apr. 10, 1970
	University of Saskatchewan	Apr. 10, 1970
CALGARY	The Calgary Inn	Apr. 16, 1970
	University of Alberta	Apr. 16, 1970
EDMONTON	Edmonton Public Library	Apr. 17, 1970
	University of Alberta	Apr. 17, 1970
SUDBURY	Sudbury Public Library	May 7, 1970
THUNDER BAY	Royal Edward Hotel	May 8, 1970
HAMILTON	Board of Education Building	May 14, 1970
	Board of Education Building	May 15, 1970
LONDON	Hotel London	May 22, 1970
	London Public Library	May 22, 1970
WINDSOR	City Hall	May 23, 1970

Schedule of the Commission's Public Hearings

THREE RIVERS	CEGEP de Trois-Rivières	Oct. 15, 1970
	University of Quebec	Oct. 15, 1970
	Auditorium of the Seminary	Oct. 15, 1970
SHERBROOKE	CEGEP de Sherbrooke	Oct. 16, 1970
	Sherbrooke University	Oct. 16, 1970
	Wellington Hotel	Oct. 16, 1970
LENNOXVILLE	Bishop's University	Oct. 17, 1970
HALIFAX	Queen Elizabeth High School	Oct. 23, 1970
ST. JOHN'S	Newfoundland Hotel	Oct. 24, 1970
TORONTO	St. Lawrence Market	Oct. 29, 1970
	St. Lawrence Market (evening)	Oct. 29, 1970
MONTREAL	Queen Elizabeth Hotel	Oct. 31, 1970
SEPT-ÎLES	Sept-Îles Hotel	Nov. 5, 1970
	Sept-Îles Hotel (evening)	Nov. 5, 1970
SAINT JOHN	Holiday Inn	Nov. 5, 1970
BAIE COMEAU	Caravelle Hotel	Nov. 6, 1970
CHARLOTTE-TOWN	Charlottetown Hotel	Nov. 6, 1970
WINNIPEG	Fort Garry Hotel	Nov. 12, 1970
REGINA	Saskatchewan Centre	Nov. 13, 1970
EDMONTON	Holiday Inn	Nov. 19, 1970
VANCOUVER	Vancouver Hotel	Nov. 20, 1970
	Vancouver Hotel (evening)	Nov. 20, 1970
OTTAWA	Skyline Hotel	Feb. 19, 1971

Commission Research Projects

The following list of projects reflects the major areas of our research and the general division of labour among Commission research personnel. In addition to these studies, there were numerous other miscellaneous investigations and writing tasks which were not formally classified as research projects. Many studies were carried out in collaboration with independent scientists on contract in universities and other institutions, but most of the research program was conducted by the full-time Commission staff in Ottawa. The names and addresses of the contract researchers and consultants are listed separately in Appendix O. Full-time staff members with the Commission during the preparation of this *Final Report* are presented in Appendix N; former members of the staff, whose work contributed primarily to earlier Commission reports, are listed in those publications.

The research projects varied considerably in scope and in the form of their end products. Some were relatively limited pilot or preliminary studies which were terminated after the initial data gathering or inquiry stage. Certain projects focussed on specific subjects in a way which led to complete working papers or study reports. In many instances a particular project entailed only a specific limited study and is not indicative of the overall examination of the topic by the Commission. Other projects included rather massive continuing investigation and monitoring of broad areas. These efforts typically resulted in a regular flow of information to the Commissioners and senior staff members involved in the drafting of the Commission reports, rather than in specific finished papers; much of the material in these studies was continuously up-dated and revised as new data became available. Often there was direct input of the primary information from research to Commission report drafts, without the intervening stage of separate and complete project reports. As far as possible the Commission has attempted to convey the essentials of its research in its published reports. Many studies were completed to the extent necessary for the preparation of the official Commission reports but have not been exhaustively exploited from a broader scientific standpoint. Further analysis and independent publication of information from certain Commission studies may be done by individual researchers after the release of

this *Final Report*. However, there will not be any further analysis or publication of technical reports by the Commission.

For the purpose of this appendix, the projects have been grouped into ten general categories according to principal area of reference, as follows: (A) Drug Effects; (B) Chemical and Botanical Aspects; (C) Sources and Distribution; (D) Extent and Patterns of Use; (E) Motivation and Causal Factors; (F) Law and Law Enforcement; (G) Medical Treatment and Related Services; (H) Information and Education; (I) Mass Media; and (J) Miscellaneous. Many of the projects have provided material related to more than one topical area, but for the sake of simplicity in this presentation we have attempted to minimize duplication and cross-references.

A. Drug Effects

1. Critical review of research on drug effects.
(R. Miller, R. Hansteen, J. Brewster, P. Oestreicher, B. Hemmings, Z. Amit, M. Corcoran, P. Thompson, L. Wright, D. Thompson, R. Paterson, B. Anthony, & M. Willinsky)
28. Investigation of cannabis psychosis.
(R. Miller, J. Brewster, J. Anderson, & T. Ridley)
- 62a. Drug-induced poisoning and death in Canada: An analysis of government statistics.
(R. Miller, & B. Hemmings)
- 62b. Survey of provincial coroners regarding drug-related deaths.
(B. Hemmings, R. Miller, E. Bild, & P. Thompson)
64. Survey of Ottawa-area physicians regarding the non-medical use of drugs.
(R. Miller, J. Brewster, B. Leathers, & B. Hemmings)
65. Survey of LSD researchers in Canada.
(B. Hemmings, & R. Miller)
74. The effects of cannabis and alcohol on some automobile driving tasks.
(R. Hansteen, L. Lonero, R. Miller, B. Jones, J. Brewster, M. Elliott, & H. Stankiewicz)
- 77a. A comparison of the effects of Δ^9 THC and marijuana in humans.
(R. Miller, R. Hansteen, C. Adamec, J. Brewster, J. Bijou, S. Dayken, C. Farmilo, D. Hamilton, S. Link, R. Siegal, M. Willinsky, R. Mechoulam, & C. Moiseiwitsch)
- 77b. The effects of marijuana on visual signal detection and the recovery of visual acuity after exposure to glare.
(L. Theodor, R. Miller, J. Glass, R. Hansteen, & S. Dayken)
78. The effects of cannabis and alcohol on psychomotor tracking performance.
(L. Reid, R. Hansteen, R. Miller, N. Wexler, P. Muter, & M. Awasthy)
90. Drug use and non-drug crime.
(F. Hughes, M. Green, R. Miller, & L. McDonald)

107. Non-medical drug use as a factor in hospitalization: A survey of Canadian psychiatric hospital diagnostic records.

(B. Hemmings, R. Miller, & E. Bild)

See also: (B) 103; (C) 112; (D) 92, 105b; (E) 45, 58, 75.

B. Chemical and Botanical Aspects

60. An examination of street drug analysis needs and facilities in Canada.

(P. Oestreicher, R. Miller, R. Paterson, C. Farmilo, I. Stankiewicz, & L. Barash)

88. An historical review of hemp cultivation in Canada.

(L. Barash, C. Farmilo, R. Miller, R. Farmilo, & H. Stankiewicz)

- 96a. Chemical analysis of street drugs in Canada: Non-forensic aspects.

(R. Miller, P. Oestreicher, J. Marshman, H. Beckstead, R. Paterson, R. Berg, G. Larsson, B. Hemmings, M. Green, C. Farmilo, M. Willinsky, P. Cooper, L. Barash, & J. Brewster)

- 96b. Chemical analysis of police seizures in Canada.

(R. Miller, P. Oestreicher, H. Beckstead, R. Paterson, & C. Farmilo)

103. Chemical aspects of cannabinoids and their metabolites: A review of existing information.

(P. Oestreicher, R. Miller, C. Farmilo, B. McNaughton, D. Phelps, M. Willinsky, R. Mechoulam, & D. Thompson)

104. Botanical and agricultural aspects of cannabis.

(E. Small, C. Farmilo, R. Miller, P. Oestreicher, & L. Barash)

110. The effects of combustion on cannabis.

(K. Fehr, H. Kalant, R. Miller, & R. Hansteen)

See also: (D) 92; (J) 99.

C. Sources and Distribution

8. Illicit drug trafficking in Canada.

(M. Green, K. Stoddart, R. Solomon, M. Hollander, J. Hogarth, & P. Thompson)

19. Organized crime involvement in drug trafficking in Canada.

(J. Hogarth, R. Solomon, & M. Green)

34. Importation, production and marketing of psychotropic drugs in Canada.

(J. Kodua, M. Green, C. Farmilo, R. Miller, J. Moore, & A. Arda)

106. International aspects of heroin distribution.

(R. Solomon, J. Hogarth, & M. Green)

112. The history of the medical use and availability of cannabis in Canada.

(R. Miller, P. Oestreicher, L. Barash, & R. Farmilo)

See also: (B) 96a, 96b; (J) 99.

D. Extent and Patterns of Use

7. Participant observation study of street-level drug users in major Canadian cities, summer 1970.
(M. Green, R. Aubin, H. Broomfield, C. Bussière, B. Darrough, A. Dudeck, D. Gagné, M. Gaussiran, B. Hemmings, M. LeBlanc, G. Letourneau, R. Manes, E. Marchuk, D. McLachlen, C. Murphy, M. O'Neill, K. Stoddart, B. Torno, & J. Woolfrey)
9. Participant observation study of suburban youthful drug users in the Montreal area.
(M. O'Neill, & M. Green)
14. Participant observation study of street-level drug users in Toronto.
(R. Manes, B. Torno, & J. Hogarth)
36. Alcohol consumption and alcoholism in Canada.
(J. Kodua, & R. Miller)
41. Critical review of the international literature on the extent and patterns of amphetamine use.
(M. Green, M. Hollander, J. Blackwell, & S. Sadava)
42. Mediating drug factors and use at rock festivals.
(W. Clement, B. Chapman, M. Balkar, & G. Della-Stua)
- 51a. The non-medical use of drugs and associated attitudes: A national household survey.
(C. Lanphier, S. Phillips, N. Kuusisto, G. Smith, L. Thomas, & P. Craven)
- 51b. Secondary school students and non-medical drug use: A national survey of students enrolled in grades seven through thirteen.
(C. Lanphier, S. Phillips, N. Kuusisto, G. Smith, L. Thomas, & P. Craven)
52. University students and non-medical drug use: A national survey.
(C. Lanphier, S. Phillips, N. Kuusisto, G. Smith, L. Thomas, & P. Craven)
57. Coordination of sociological information on heroin with selected reviews.
(J. Blackwell, R. Miller, M. Green, S. Goldner, & R. Solomon)
76. Synopsis of non-medical drug use surveys in Canada.
(G. Smith, & B. Rogers)
86. Participant observation study of street-level drug users in London, Ontario.
(R. Leth, & M. Green)
87. Historical, theoretical, and descriptive study of drug use in Amsterdam, Netherlands.
(G. Letourneau)
89. Interviews with 'straight' adult cannabis users.
(M. Green, B. Leathers, D. Ellis, M. Elliott, M. Hollander, E. Marchuk, S. Moss, K. Ouellette, & M. Stark)

92. Self-reporting of drug use patterns by regular cannabis users: A log book study.
(M. Green, B. Hemmings, R. Miller, R. Hansteen, & M. Hollander)
97. Review of sociological research on cannabis, hallucinogens, barbiturates, and volatile solvents.
(S. Sadava, J. Blackwell, M. Green, D. McLachlen, & L. McDonald)
98. Alcohol use among Canadian Indians.
(P. Trottier, G. Rushowick, J. Dewhirst, F. Walden, & W. Hlady)
102. Continuing participant observation study of committed drug users.
(M. Green, R. Aubin, B. Darrough, M. Hollander, M. O'Neill, K. Ouellette, & E. Smith)
- 105b. Comparative international study of alcoholism.
(M. Latchford, & L. McDonald)
109. Tobacco use in Canada: Epidemiological and treatment aspects.
(D. Andrews, F. Wake, J. MacLean, M. Green, P. Thompson, & R. Miller)
111. Continuing survey of sensitive observers in Canada: The final monitoring project.
(M. Green, J. Blackwell, B. Anthony, R. Aubin, M. Buriak, R. Farmilo, G. Letourneau, K. Martin, C. Murphy, & W. Spicer)
115. Relationships among the patterns of use of different drugs.
(G. Smith, R. Miller, C. Petch, J. Blackwell, & J. Brewster)
See also: (C)112; (E)a11; (J)99, 101.

E. Motivation and Causal Factors

13. A selective review of the sociological literature bearing on drug use with emphasis on policy.
(J. Hackler)
24. Social change, alienation, and youth: A sociological analysis.
(R. Crooke, & T. Buckner)
25. Sociological approaches to non-medical drug use and drug dependence: A non-critical review.
(B. Rogers, & M. Green)
43. Growing up in a new world: A sociological analysis.
(T. Buckner)
44. Drug use in contemporary society.
(M. Mouledoux)
54. Sociological aspects of non-medical drug use: A private Commission symposium, Montreal, December 1970.
(Commissioners, H. Becker, J. Blackwell, M. Bryan, C. Farmilo, M. Green, B. Hemmings, J. Hogarth, L. McDonald, R. Miller, J. Moore, T. Morris, M. Rioux, E. Schur, F. Walden, & A. Zijdeveld)

58. Review of the psychological, psychiatric and pharmacological literature on drug use and drug dependence.

(Z. Amit, M. Corcoran, R. Miller, M. Elliott, & B. Hemmings)

75. Theories of drug use and addiction.

(L. McDonald)

See also: (A)107; (D)42, 57, 115; (G)63; (I)81; (J)99, 101.

F. Law and Law Enforcement

2. Canadian federal drug prosecutors.

(J. Hogarth, & M. Kleiman)

6. Comparative study of foreign legislation respecting psychotropic drugs.

(S. Ryan, & S. Troster)

12. Economic implications of the current drug phenomenon.

(D. Szabo, S. Rizkalla, R. Fasciaux, & F. G  linas)

15. The decision-making flow with respect to Canadian drug offenders.

(J. Hogarth, J. Prince, A. Kidd, M. Moriarity, J. Kodua, & A. Arda)

16. Demographic patterns of law enforcement in Canada.

(J. Hogarth, & R. Solomon)

17. Interviews with Canadian police officers.

(J. Hogarth, R. Solomon, & Y. Liljefors)

18. Participant observation with police forces in Canada.

(J. Hogarth, & R. Solomon)

20. Sentencing attitudes and practices with respect to drug offenders in Canada.

(J. Hogarth, J. Prince, A. Kidd, H. Kleiman, S. Kasman, Y. Liljefors, & R. Solomon)

21. The use of probation in dealing with drug offenders in Canada.

(J. Hogarth, G. Fields, & R. Solomon)

22. A study of certain correctional institutions with particular reference to their effect on drug offenders.

(J. Hogarth, L. McDonald, R. Solomon, & A. Caplan)

23. The handling of drug offenders in the criminal justice system of Quebec.

(J. Laplante, & J. Hogarth)

33. Study of U.N. conventions for the control of psychotropic drugs.

(C. Farmilo, & R. Miller)

37. The extent and patterns of drug-involved convictions and sentences in Canada.

(J. Hogarth, J. Kodua, J. Prince, P. Oestreicher, A. Arda, & G. Doherty)

39. A doctrinal study of law in relation to drug control.
(P. Weiler)
 73. Entrapment and violence in the enforcement of drug laws.
(B. Anthony, J. Moore, R. Solomon, & M. Green)
 85. Review of research on the psychological and behavioural effects of imprisonment.
(W. Mann)
 93. Law enforcement practices with respect to drug offences in Canada: An analysis and summary of related projects.
(J. Hogarth, L. McDonald, R. Solomon and associates)
 94. Law enforcement aspects of non-medical drug use: A private Commission symposium, Montreal, March, 1971.
(Commissioners, J. Ackroyd, J. Blackwell, M. Bryan, J. Edwards, M. Green, B. Hemmings, J. Hogarth, J. Kaplan, L. McDonald, R. Miller, H. Mohr, J. Moore, K. Paul, R. Quinney, M. Rosenthal, S. Ryan, L. Schwartz, R. Solomon, & P. Weiler)
 - 105a. Comparative international study of drug law enforcement.
(M. Latchford, & L. McDonald)
 - 113a. Civil commitment and compulsory treatment of drug users in Canada.
(M. Bryan, F. Brown, A. Lane, & B. Hemmings)
 - 113b. Civil commitment and compulsory treatment of drug users in the U.S.A.
(M. Green, J. Blackwell, & R. Miller)
 116. The Methadone Control Program of the Government of Canada.
(A. Lane)
 117. Probation for heroin dependents in Canada.
(M. Bryan)
 118. Parole of heroin dependents in Canada.
(M. Bryan)
- See also:* (A) 90; (B) 60; (C) 112; (G) 114; (J) 61, 99, 101.

G. Medical Treatment and Related Services

10. Study of innovative services in Canada.
(B. Rogers, N. Martin, R. Farmilo, M. Morin, & J. Anderson)
26. An analysis of selected addiction treatment programs.
(J. Anderson, & T. Ridley)
27. Review of approaches to the treatment of alcoholism.
(J. Anderson, & T. Ridley)

Appendix R

29. The treatment of chronic amphetamine users.
(J. Anderson, & J. Shaw)
 30. Survey of community treatment services in Canada.
(J. Anderson, & T. Ridley)
 31. Adverse reactions to LSD: Treatment and epidemiological aspects.
(J. Anderson, R. Miller, J. Brewster, T. Martin, T. Lee, & T. Johns)
 32. A summary of treatment methods for medical problems associated with psychotropic drug use.
(T. MacFarlane, & J. Anderson)
 38. Alternatives to psychotropic drug use.
(A. Wine, J. Anderson, T. Ridley, & R. Miller)
 63. Treatment aspects of non-medical drug use: A private Commission symposium, Montreal, January 1971.
(Commissioners, J. Anderson, G. Bell, T. Bewley, J. Blackwell, H. Brill, M. Bryan, C. Farmilo, G. Gay, M. Green, R. Hansteen, B. Hemmings, J. Jaffe, R. Miller, J. Moore, J. Shaw, R. Smith, & L. Yablonsky)
 83. A critical review of methadone therapy programs.
(J. Anderson, J. Shaw, M. Bryan, M. Green, J. Blackwell, R. Hansteen, & R. Miller)
 91. Medical treatment: A summary of related projects.
(J. Anderson and associates)
 114. The "British System": The treatment of opiate-dependent persons in the United Kingdom.
(B. Anthony, & J. Blackwell)
 119. Treatment capacity in the provinces.
(A. Lane, M. Bryan, & B. Rogers)
- See also:* (A) 64, 107; (D) 42, 109; (F) 12, 113a, 113b, 116, 117, 118; (J) 99, 101.

H. Information and Education

5. Drug education, information, and services in selected Toronto schools.
(J. Solway, & H. Solway)
11. Documentation of scientific and technical information on psychotropic substances.
(C. Farmilo, R. Miller, E. Polascek, E. Hanna, A. Kerr, L. Barash, G. Larsson, I. Stankiewicz, & D. Thompson)
46. Community drug education programs.
(D. Hanley, & F. Walden)
- 53a. A brief review of the literature in the field of drug education.
(F. Walden)

- 53b. Drug education: An analysis and summary of related Commission projects.
(B. Myers)
59. Drug education in Canadian public schools.
(B. Myers, F. Walden, D. Hanley, & C. Lohoar)
67. An investigation of drug education efforts by large organizations.
(F. Walden, D. Hanley, & S. Gillean)
68. Drug education for professionals and others in universities and community colleges in Canada.
(S. Gillean, D. Hanley, & F. Walden)
71. A comparative study of drug education in selected foreign countries.
(B. Myers, F. Walden, C. Lohoar, & I. Stankiewicz)
84. Problems with government statistics.
(R. Miller, J. Kodua, M. Bryan, M. Green, B. Anthony, & A. Arda)
108. Students and drug education.
(F. Walden, B. Myers, H. Solway, & J. Solway)
- See also:* (F)12; (G)38; (I)81; (J)61.

I. Mass Media

- 81a. The media and the social context of drug use: General aspects and summary of related Commission studies.
(J. Taylor, J. Moore, F. Walden and associates)
- 81b. A survey of responses by Canadian daily newspapers and periodicals to non-medical drug use.
(C. Hénault)
- 81c. The underground press.
(M. Slack, J. David, & M. Green)
- 81d. Drugs and literature.
(J. Basile, & S. Fefferman)
- 81e. Drugs and music.
(M. Green, P. Goddard, & J. David)
- 81f. The role of advertising in promoting attitudes to the use of drugs.
(M. Callaghan)
- 81g. Drugs and Canadian film.
(M. Brûlé)
- 81h. Radio, TV and drugs.
(P. Watson, G. Constantineau, P. Goddard, & A. Sirois)
- 81i. Drugs and the plastic and environmental arts.
(A. Leblanc)

J. Miscellaneous Projects

50. Analysis of unsolicited letters to the Commission.
(D. Rebin, J. Moore, J. MacBeth, R. Miller, J. Kodua, & P. Oestreicher)
61. Analysis of Canadian policy on non-medical drug use research.
(R. Miller, P. Oestreicher, C. Farmilo, R. Hansteen, D. Thompson, R. Paterson, J. Moore, & L. Barash)
66. Current research on psychotropic drugs: A survey of major studies in progress in Canada and abroad.
(P. Oestreicher, R. Miller, R. Hansteen, C. Farmilo, J. Brewster, M. Willinsky, R. Paterson, G. Larsson, & B. Myers)
72. An examination of the attitudes and responses of religious, business, military, professional and other organizations to non-medical drug use.
(F. Walden, D. Hanley, & S. Gillean)
82. An analysis of *Interim Report* critiques.
(D. Rebin, R. Miller, J. Moore, N. Eddy, S. Cohen, & Z. Amit)
99. Coordination of tobacco information: Scientific and legal aspects.
(P. Thompson, & R. Miller)
101. Coordination of alcohol information: Scientific and legal aspects.
(F. Hughes, R. Miller, C. Petch, & P. Thompson)



